AD_____

CONTRACT NUMBER DAMD17-93-C-3101

TITLE: Blast Overpressure Studies

SUBTITLE: Nonauditory Damage Risk Assessment for Simulated Muzzle Blast from a 120mm M121 Mortar System

PRINCIPAL INVESTIGATOR: Daniel L. Johnson, Ph.D.; John T. Yelverton, M.S.; William Hicks, B.S.; Barbara Merickel, D.V.M.

CONTRACTING ORGANIZATION: EG&G Management Systems, Inc.
Albuquerque, New Mexico 87119-9100

REPORT DATE: October 1997

TYPE OF REPORT: Final, Task Order 2

PREPARED FOR: Commander
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for public release; distribution unlimited

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	October 1997	Final, Task Order 2 (21 Jun 93 - 30 Sep 97)

4. TITLE AND SUBTITLE
Blast Overpressure Studies
SUBTITLE:: Nonauditory Damage Risk Assessment for Simulated Muzzle Blast from a 120mm M121 Mortar System

5. FUNDING NUMBERS
DAMD17-93-C-3101

6. AUTHOR(S)
John T. Yelverton, M.S., Daniel L. Johnson, Ph.D., William Hicks, B.S., and Barbara Merickel, D.V.M.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
EG&G Management Systems, Incorporated
Albuquerque, New Mexico 87119-9100

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

This study was undertaken to establish the subthreshold, threshold, and suprathresholds for nonauditory injuries in a simulated muzzle blast environment like that produced when firing a 120mm M121 mortar system. A vertical axis explosively driven shock tube, in combination with reflector shields, was used to produce the required muzzle blast pressure-time pattern. Varying numbers of anesthetized sheep were subjected to 6 or 50 blasts of simulated muzzle blast waves in 1.5- to 3.0-dB increments. The results of the study demonstrated that sheep could be exposed to Pmax levels consisting of 6 blasts of 36 kPa each and 50 blasts of 30 kPa each and sustain no injuries to trivial upper respiratory tract injuries at most. Threshold injuries were calculated to occur at 53 and 34 kPa for 6- and 50-blast exposures, respectively. Suprathresholds for URT and GI tract lesions were predicted to be 69 and 46 kPa for 6 and 50 blasts each. A suprathreshold for lung hemorrhage was predicted at 277 kPa for 6 exposures. Comparative analyses of this study with previous complex wave studies demonstrated that the safe nonauditory subthreshold for as many as 100 complex blastwave exposures was 22 kPa.

14. SUBJECT TERMS
120mm Mortar M121 Simulation; Simulated Muzzle Blasts;
120mm Mortar Nonauditory Injuries; Sheep Exposed to 120mm Mortar Simulations

15. NUMBER OF PAGES
239

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

FOREWORD

Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the U.S. Army.

____ Where copyrighted material is quoted, permission has been obtained to use such material.

____ Where material from documents designated for limited distribution is quoted, permission has been obtained to use the material.

__✓__ Citations of commercial organizations and trade names in this report do not constitute an official Department of Army endorsement or approval of the products or services of these organizations.

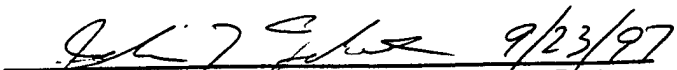
__✓__ In conducting research using animals, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and Use of Laboratory Animals of the Institute of Laboratory Resources, National Research Council (NIH Publication No. 86-23, Revised 1985).

__✓__ For the protection of human subjects, the investigator(s) adhered to policies of applicable Federal Law 45 CFR 46.

____ In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

____ In the conduct of research utilizing recombinant DNA, the investigator(s) adhered to the NIH Guidelines for Research Involving Recombinant DNA Molecules.

____ In the conduct of research involving hazardous organisms, the investigator(s) adhered to the CDC-NIH Guide for Biosafety in Microbiological and Biomedical Laboratories.



PI - Signature 9/23/97 Date

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES

LIST OF FIGURES (Continued)

LIST OF PERSONNEL

Daniel L. Johnson, Ph.D.	Research Director
John T. Yelverton, M.S.	Principal Investigator
Barbara Merickel, D.V.M.	Attending Veterinarian
William Hicks	Biologist
Allie Shaw	Veterinarian Assistant
Dubbin Watts	Programmer
Roy Doyal	Programmer
George Shepler	Electronics Technician
Lewis West	Explosives Supervisor
Scott Carter	Explosives Technician
Pamela Sanchez	Explosives Runner

FINAL REPORT

TASK ORDER 2 - FY 96/97

DAMD-17-93-C-3101

BLAST OVERPRESSURE STUDIES:

Nonauditory Damage Risk Assessment for Simulated Muzzle Blasts from a 120mm M121 Mortar System

INTRODUCTION

Previous studies conducted for the Walter Reed Army Institute of Research (WRAIR) demonstrated that the complex blast waves generated by detonating various weights of bare, spherical C-4 charges in three different enclosure volumes produced varying degrees of nonauditory injury in anesthetized sheep.[1] The extent of the injury depended upon the size of the charge detonated and the location of the animal with respect to the charge position in the chamber. As in the freefield, injury levels increased with increasing charge weights. However, they also varied as a function of the location of the subject in the enclosure and not necessarily as a function of range from the explosion which is the case in the freefield. Animals in the corners of the enclosure sustained more severe injuries in the form of solid intra-abdominal organ damage than those located away from the multiple

reflecting surfaces and a shorter distance from the explosion. This was particularly true at the higher blast levels. At the higher levels, the reflected waves tended to focus, producing "incident reflected waves" 3 to 10 times higher than those generated in the freefield at the same ranges and with the same weight of explosive.

It was also demonstrated that quasi-static pressure did not influence the lungs, upper respiratory tract, or gastrointestinal tract injury to any appreciable degree. Nonetheless, the reverberant nature of the complex wave was altered by changing the quasistatic pressure and that did appear to have a slight effect on solid intra-abdominal organ response. There was a higher incidence of solid intra-abdominal organ injury that was also more severe in the subjects exposed in the chamber with the door locked and vents closed.

An injury prediction curve using a severity of injury index[2] and smoothed peak pressure (Psm) as correlates appeared to be an adequate model for the information collected. It was also found that, intra-abdominal injury notwithstanding, by converting Psm to maximum peak pressure (Pmax), there was a good correlation between the injury prediction curve and the "Bowen freestream survival curves"[3] for 2- to 3-ms waves. This infers that the pulse

with highest peak and longest duration of the individual pressure pulses in the complex wave is primarily responsible for injury production, with limited additive effects from the multiple shocks associated with the reverberant wave. The extent to which this relationship holds true for other classes of waveforms needs to be clarified.

Additional experiments were done in which anesthetized sheep were exposed to a reverberant blast like that produced by firing an antitank weapon from a room.[4] Blast waves of varying intensity were generated by detonating various weights of bare C-4 charges. They were introduced into an 18.2-m^3 chamber through a 20-cm ID tube that extended halfway into the room. The reverberant waves were created by the reflection of the blast waves off the back wall and subsequently throughout the room. The dimensions of the room were such that the eigen frequency of the chamber was 60 Hz. This corresponds to the natural frequency of the thorax of a sheep which was determined by high-speed photography of a blast loaded sheep in the chamber. The waveshapes that were generated were a good approximation of the reverberant wave generated by a Carl-Gustav antitank weapon fired from a chamber even with increasing blast intensity. The results indicated that multiple shots had a strong additive effect, decreasing the subthreshold

levels. Subthreshold for a single blast exposure was at a peak pressure (Pmax) of 49 kPa whereas subthreshold for three exposures was at a Pmax of 43 kPa. The subthreshold for 12 exposures was not determined.

Another study undertaken to establish the nonauditory injury subthreshold for the simulated M109 155mm self-propelled howitzer provided an additional wave shape for comparison to the prior complex wave environment experiments.[5] The safe no-injury levels were found to be 24 kPa for 6 blasts and 20 kPa for 25 to 100 blasts.

This report is a continuation of the above studies and describes the results of experiments undertaken to establish the nonauditory subthreshold for injury in a simulated muzzle blast environment like that produced when firing a 120mm M121 mortar system. Anesthetized sheep were exposed to various intensities and repetitions of the simulated muzzle blast to correlate with the operational level muzzle blasts from the actual weapon system.

OBJECTIVES

The objectives of this study were to establish the subthreshold, threshold, and suprathreshold pressure levels for

nonauditory injuries at the crew positions for 6- or 50-blast exposures.

METHODS

The 120mm M121 mortar system muzzle blast simulator (120mm mbs) illustrated in Figure 1 was used to develop a waveform similar to that generated by the actual weapon system. Once the location around the simulator for the best muzzle blast waveform simulation was established, anesthetized sheep were exposed to various intensities and repetitions of the simulated wave. As illustrated in the overhead view of the simulator in Figure 2, two anesthetized sheep at a time were fitted with nylon fish net harnesses and suspended at a height of 0.9-m from the floor of the simulator as measured to the xiphisternum during each test. The leading edges of their thoraxes were also at 0.45-m from the outside edge of the simulator barrel. Nylon parachute cord was used to hold the animals in place during blast exposure. The interval between shots during each experiment was one minute.

Waveform Development

The muzzle blast pressure-time pattern selected by the WRAIR to simulate is illustrated in Figure 3. It was recorded at the

assistant gunner position during the firing of an M933 round from the M121 mortar system mounted in a M1064 armored personnel carrier with the ramp up.

Single pressure transducers were used to map the pressure-time environment at various heights and locations on either side of the outlet vents of the simulator during the development of the simulated muzzle blast waveform. They were used in the same manner as the gauges used to map the muzzle blast around the gun barrel of the actual weapon system. Most of the measurements were taken at heights of 0.9- and 1.2-m from the floor of the simulator and 0.45-m from the outside edge of the barrel. Once the simulated waveform illustrated in Figures 4 and 5, recorded by the single side-on gauges, was approved by the WRAIR, additional measurements were taken with the WRAIR instrumentation cylinders to establish a calibration curve for the study. Cylinder gauge positions are illustrated in Figure 6. Single face-on gauges were also placed in the north and south reflector shields for use as monitor gauges and are included in Figure 6. The face-on gauge for each instrumentation cylinder was 0.45-m from the gun barrel. Initial measurements were taken at 1.2-m from the floor since it had been originally planned to have the sheep at a height of 1.2-m from the floor as measured to the xiphisternum. However, when

it was found that this position would have placed the sheeps' heads directly opposite the opening of the lower blast vent of the simulator, the measurement and sheep hanging heights were dropped to 0.9 m.

Experimental Design

The experimental design for the study is presented in Table 1. Varying numbers of anesthetized sheep were to be subjected to 6 or 50 blasts of simulated muzzle blast waves in 1.5- to 3.0-dB increments. Exposure doses and charge weights were to be derived from the instrumentation cylinder calibration shots mentioned above. There were two experiments based upon the number of exposures the animals received. A blast exposure level sufficient to produce some level of lung hemorrhage was chosen as the starting point for the 6-exposure experiment. Initially, two animals were to be used at the starting point to verify lung injury then drop down in exposure levels in 3-dB increments using two animals per point until lung and/or gastroenteric injury dropped out. Increments of 1.5 dB between exposure doses and 10 animals per point were to be used to estimate the severity of injury range for each of these levels as well as provide sufficient data for a dose-response curve. If there were no injuries in a group of ten then

as many as 36 animals were to be exposed to establish the subthreshold for 6 blasts. The 50-exposure series was to start one level above the subthreshold for 6 shots. By starting at least one pressure step above the subthreshold, a three-point dose-response curve or better could also be established for the 50-exposure experiment. An sample size of 40 was to be used to verify the 50-shot subthreshold. As many as 20 control sheep were to be used in pairs at intervals throughout the study to compensate for any lesions induced by iatrogenic factors or disease.

It was felt that using larger sample sizes at the two no-injury levels would provide reliable anchor points for the study. By using an n of 36 there would be a 1 in 12 chance of injury at the 95-percent confidence level. For an n of 40 there would be a 1 in 13.3 chance of injury with the same 95-percent confidence level.[6]

Instrumentation

One to two Piezotronics (PCB) Model 102M195 piezoelectric pressure transducers were used as side-on gauges during the waveform development phase of the study. A 1- to 2-mm-thick coating of temperature resistant high vacuum grease impregnated with charcoal, to mitigate thermal and flash effects, was applied to

the face of each gauge before a shot series. A total of 17 different test configurations were tried before achieving an acceptable waveform.

During the calibration phase of the study, two WRAIR instrumentation cylinders were used in the test positions illustrated in Figure 6. The cylinders were fitted with four each ablative coated PCB Model 102M194 or 102M125 piezoelectric transducers at 90-degree intervals around their circumferences and 7.6 cm above the midpoints of their long axes. The distance from the test apparatus floor to the centers of the gauge sensing elements was 0.91 m. An additional PCB Model 102M165 grease-coated gauge was inserted face-on at a height of 1.2 m in each of the reflecting shields shown in Figure 6 for use as monitor gauges during the animal exposures. Instrumentation during animal testing was limited to these two gauges.

Signals from the transducers were passed into PCB Model 464 amplifiers for conditioning. The unfiltered signals from the amplifiers were digitized over 13 of 15 segments of 8k data points each at an 8-μsec sample interval with a Pacific Instruments Model 9832 transient data acquisition system operating in conjunction with a CDI/486 personal computer. The digitized data was stored on both 44 and 100 Mbyte iomega® disks for archival

purposes and analysis using the blast analysis software developed for EG&G by Professional Computer Consultants. The data stored on the 44 Mbyte disks were sent to the WRAIR for further analysis.

Animal Care

A total of 167 female Columbia-Rambouillet cross sheep having body weights ranging from 33.6 to 52.7 kg were used during the study. They were treated for endoparasites and their ears were sprayed with tick pesticide 4 days after arrival at the laboratory outdoor pens. The drinking water was also treated with terramycin powder at a rate of 0.6 g/liter for 2 weeks after arrival to help reduce the incidence of pulmonary complications.

Each of the outdoor pens in which the sheep were kept had a portion with an overhead cover. One to two weeks prior to testing, the subjects were moved into indoor pens in groups of 10, given a second application of tick spray, retreated for endoparasites and shorn of their wool. They were kept in groups of four to six in pens with wood shavings on the floor. Food pellets were provided at a rate of 1 kg/head/day. Water was available *ad libitum*. Each animal was fasted a minimum of 18 hours before a test.

On the morning of a test, the animals were weighed, harnessed and given an otoscopic examination to remove any obstructions from the ear canals. The ears were then fitted with E.A.R.® plugs.

Each sheep received a preanesthetic intramuscular (IM) injection of atropine sulfate (0.44 mg/kg) and xylazine (0.22 mg/kg) and was placed in its test position approximately 15 minutes prior to blast exposure. At 5 minutes before the start of testing, each sheep was anesthetized with an IM injection of ketamine hydrochloride (11 mg/kg).[7,8] A 3- to 4-minute break was taken to check and reinject the sheep with ketamine hydrochloride, as needed, after shot 25 during the 50-shot experiment to insure proper anesthesia levels.

Pathology Scoring

The animals were not allowed to recover from anesthesia. Starting at approximately 1 hour after the last blast exposure, one sheep at a time was given an IM injection of ketamine hydrochloride (22mg/kg), exsanguinated by severing the jugular veins and carotid arteries, and necropsied. Each animal was assessed for injuries by using an alphanumeric scoring code.[2] Any external lesions, fractures, and trauma to the pharynx/larynx, tra-

chea, lungs, heart, hollow abdominal organs and solid abdominal organs were assigned individual numerical scores based on the severity of the lesion. These numerical values were derived from a pathology scoring system initially developed by the WRAIR in collaboration with the Lovelace Biomedical and Environmental Research Institute and is currently used in the Jaycor Pathos data base program. The various lesions were also graded as trace, slight, moderate, or extensive depending upon their severity.

The lungs were graded:

- Negative, for no injury;
- Trace, for scattered surface petechiation or minimal ecchymoses involving less than 10% of the organ;
- Slight, for areas of extensive petechiation to scattered parenchymal hepatization involving ≤10% of the lungs.

The pharynx/larynx and trachea were graded:

- Negative, for no injury;
- Trace, for scattered petechiation to isolated spots of ecchymosis less than one layer deep covering <10% of the organ;

- Slight, for scattered petechiation to confluent contusions one to two layers deep involving <30% of the organ;
- Moderate, for lesions ranging from ecchymotic spots to confluent contusions two layers deep encompassing <60% of the organ;
- Extensive, for areas of confluent contusions two or more layers deep covering 60% or more of the organ, including reduction in lumen diameter from hematoma formation and edema.

The hollow abdominal organs were scored:

- Negative, for no injury;
- Trace, for minor contusions with intact mucosa and no more than two tissue layers deep or two organs involved with the contusions distributed over an area of <10 cm^2;
- Slight, for scattered contusions one to two layers thick generally distributed over a 1 to 30 cm^2 area with some mucosal ulcerations;
- Moderate, for multiple transmural contusions with mucosal ulcerations encompassing >21 cm^2 of surface area.

Solid intra-abdominal organ injuries were graded:

- Negative, for no injury;

- Trace, for small subcapsular contusions or hematomas involving <10% of one or two organs.

The individual scoring ranges for the severity of injury for the most commonly injured nonauditory organs were as follows:

Severity	Lung	Phx/Lyx	Trachea	GI Tract	Intra-abdominal
Negative	0	0	0	0	0
Trace	3-4	3-4	3-4	3-4	3-4
Slight	5-21	5-16	5-18	5-18	5-18
Moderate	22-26	17-22	19-28	19-28	19-28
Extensive	37-64	23-60	29-55	29-48	29-44

Each individual score was divided by its preassigned maximum possible score to arrive at a severity of injury ratio for that organ or system. The presence or absence, and the extent of a pneumothorax, hemothorax, hemoperitoneum, or coronary and/or cerebral air embolism were summed and added to the sum of the ratios. The resulting value was then multiplied by 1 or 2, depending upon whether the subject was a survivor or fatality, to arrive at an Adjusted Severity of Injury Index (ASII) by exclud-

ing ear damage values from the sum of the ratios. The ASII can be expressed by the following equation:

$$ASII = (\Sigma Ratios + \Sigma Morbidity\ Factors)*(Morbidity\ Multiplier).$$

It is a useful blast effects analysis tool in that it can be used to evaluate blast injuries in terms of trauma to the whole animal as well as to individual organs.

RESULTS

Results of the waveform modeling efforts and calibration curve development will be presented first, followed by the animal use data, gross pathology assessments and evaluations of the assessments.

Pressure-time data recorded at the crew and shield positions during calibration are presented in Table A-1 of Appendix A. The values are listed in terms of peak overpressure (Pmax) and incident overpressure (Pi) in kPa; a-duration (Ta), b-duration (Tb), and total duration (Td) in ms; A-impulse in kPa*ms; and smoothed-peak pressure (Psm) in kPa as a function of charge weight. The Psm was derived from each pressure-time data array using a 351-point fixed-size moving window which corresponds to a 175-point half window on either side of the data being operated on.

The shield gauge Pmax and the average Pmax values, calculated from the four gauges from each of the cylinders, are listed in Table A-2 of Appendix A. They were used to generate two of the three muzzle blast calibration lines illustrated in Figure 7 and 8 for C-4 charge detonations ranging in size from 60 to 1452 g.

Representative pressure-time patterns from each gauge of the south instrumentation cylinder which was at a gauge height 0.9 m are illustrated in Figures 9 through 12. The pressure-time patterns from the south instrumentation cylinder gauges were duplicates of the north cylinder gauges.

Pathology assessments for the major organs, as well as ASII values, are given in Table B-1 of Appendix B. With the exception of one animal, all assessments were blind. The 1.5-dB step down to 30 kPa was based upon the additional confirmation provided by the histopathology results for the trachea of sheep 714.

Pressure-time data from the shield gauges which monitored the shot-to-shot blast environment for each animal test are tabulated in Tables C-1 through C-78. The mean and the standard deviation for each test series are included. A table of average pressure time values is also presented in Table C-79. These val-

ues were used to produce the test linear regression line in Figure 7.

Waveform Development

As previously mentioned, the 120mm M121 mortar system muzzle blast waveform that was selected for modeling is presented in Figure 3. The simulated waves approved by the WRAIR are illustrated in Figures 4 and 5.

Calibration lines for the shield monitor gauges and test gauges, as well as the instrumentation cylinders, were generated by linear regression analysis using the least squares method to fit the lines to the data points obtained from Table A-2. The default statistic used by Excel® is the coefficient of determination, r^2, which is the ratio of the regression sum of squares divided by the total sum of squares. The regression sum of squares is the amount of variation in the predictor variable (charge weight) and the sum of squares is the amount of total variation in the response variable (pressure). Additional statistics provided with each linear regression analysis were the Pearson's coefficient of correlation (correl. coef.), t-intercept, ANOVA F score, and the standard error (SE) of the r^2.

Calibration and test regression lines for the combined north and south shield monitor gauges are illustrated in Figure 7. The correl. coef, t-intercept, F, r^2, and SE for the calibration line were 0.9849, 8.7595, 1292.1708, 0.9700, and 21.7000, respectively. Data points for the calibration Pmax pressures came from Tables A-1 and A-2 for the analysis. Test data points came from Table C-79. The correl. coef., t-intercept, F, r^2, and SE for the test line were 0.9921, 32.6879, 4749.6555, 0.9843, and 10.6445, respectively.

The regression line for the combined north and south instrumentation cylinders shown in Figure 8 was based on the four gauge average Pmax values from Table A-2, which were obtained from the individual values listed in Table A-1. The correl. coef., t-intercept, F, r^2, and SE were 0.9976, 11.7718, 7428.7521, 0.9953, and 6.4994, respectively. Experimental pressure levels used during the study were based upon this composite regression line.

Table 2 summarizes the equations for the regression lines displayed in Figures 7 and 8 as well as the Pmax values derived from the equations for each experimental charge weight used during the sheep exposures. As demonstrated in Table 2 and Figure 7 the shield monitor gauge calibration and test data are essen-

tially the same, particularly over the subthreshold and threshold range of values.

Animal Response

Table 3 lists the final experimental design in terms of exposure levels and numbers of sheep used at each level in both the 6- and 50-blast exposure experiments. A total of 12 control sheep were used at intervals throughout the study. There were 73 test sheep used in the 6-blast exposure experiments. Eight different Pmax levels of 289, 205, 145, 102, 72, 51, 43 and 36 kPa were employed to establish the subthreshold for six blasts. There was one group of 11 at the highest level, three groups of two each in the next three levels, two groups of 10 each in the next two levels, one group of 12 at the 43-kPa level, and one group of 24 at 36 kPa. Initially, there were only two animals exposed at the highest level (289 kPa). To establish a lung injury point, a change in the protocol was approved to add nine more animals at the end of the study to estimate the injury range for this group. Five different exposure levels of 72, 51, 43, 36 and 30 kPa were used to determine the subthreshold for the 50-muzzle blast exposures. A total of 82 test subjects were required. There were

three groups of 10 each in the first three levels, one group of 12 in the fourth level, and 40 in the lower 30-kPa level.

A Pmax of 289 kPa was chosen as the starting point. Slight lung injury was predicted by the WRAIR injury model from 6 blast exposures at this level. The single degree of freedom chest wall velocity model described by Axelsson and Yelverton[9] predicted trace to slight unilateral lung hemorrhage from one 289-kPa blast. Table 4 presents the results from the 289 kPa x 6-exposure level in terms of distribution of lung injury as a function of orientation, Pmax, and predicted chest wall velocity. Of the 11 animals exposed, four of five in the south position, as seen in Figure 2, had predominately trace to slight right side lung hemorrhage which corresponded to the side facing the south shield. Gauge 6 of the south instrumentation cylinder which was also facing the south shield, recorded a Pmax of 492 kPa which was the highest peak of the four recorded by the south cylinder. From digitized pressure-time data from gauge 6, the model predicted a chest wall velocity of 4.6 m/s, sufficient to produce trace to slight lung hemorrhage. In the case of the sheep exposed in the north experimental position, four of six had predominately slight left lung hemorrhage which corresponded to the side facing the north shield. North cylinder gauge 10, which was

facing the north shield, recorded a Pmax of 520 kPa, the highest of the values by the four north cylinder gauges. The digitized data from gauge 10 inputted to the model predicted a chest wall velocity of 4.7 m/s, which was sufficient to produce trace to slight lung hemorrhage.

Table 5 lists the experimental results with the respect to the incidence of gross lesions in the major gas-containing organs, mean ASII, and accumulative incidence of gross lesions as a function of Pmax and number of exposures.

Injury data were derived from the gross pathology assessments presented in appendix Table B-1. There were no solid intra-abdominal organ injuries in any of the experimental groups. The small superficial liver hematoma found in one of the controls was an anomaly and was not included in the ASII scoring.

Mean ASII scores ranged from 1.07 to 0.00 in the 6-blast exposure experiments. The most severe lesions occurred in the 289-kPa group. The lesions were to all the gas-containing organ categories, becoming less intense with each succeeding pressure level. Lung injury scores fell to 0 first at the 205-kPa level followed by the GI tract at 72 kPa. Tracheal scores fell to 0 at

36 kPa. Pharnyx/larynx lesions did not go to 0 but persisted in the form of trivial mucosal petechia in two sheep at 36 kPa.

Mean ASII scores ranged from 0.59 to 0.00 in the 50-blast exposure experiments. With the exception of GI tract, the gas containing organ injuries in this group also became less intense with each succeeding drop in pressure level. In the case of the GI tract, one animal in the 51-kPa exposure group had a trace injury whereas one animal in the 43-kPa group had a slight GI tract. There were no lung injuries in this group and tracheal injury scores dropped to 0 at 30 kPa. As in the previous group, pharynx/larynx scores did not go to 0 but persisted in the form of trivial mucosal petechia in two sheep at the 30-kPa exposure level.

Linear regression analyses of the individual ASII scores from Table B-1 for the 6- and 50-shot experiments, expressed as a function of Pmax, are illustrated in Figures 13 and 14. The correl. coef., t-intercept, F, r^2, and SE were 0.9127, -6.3228, 325.7530, 0.8331, and 0.1768, respectively, for the 6-exposure experiment analyses and 0.8388, -10.0082, 171.9896, 0.7035, and 0.1152, respectively, for the 50-exposure experiment.

Second order polynomial fits of the mean ASII values from Tables B-1 and 5, for the 6- and 50-shot experiments, expressed as a function of Pmax, are illustrated in Figures 15 and 16, respectively. Respective r^2 numbers for the 6- and 50-shot experimental curves were 0.9265937 and 0.9935705. The equations for these curves and their quadratic derivatives were used to derive the various threshold values for the 6- and 50-exposure experiments that are listed in Table 6. Using the control level ASII of 0.01 as the pivot point for both experiments, the subthresholds and thresholds for nonauditory blast injuries were calculated. The suprathreshold values were based on eyeball fits of the incidence injuries to the ASII scores. Results from the 6-exposure experiment warranted suprathresholds for upper respiratory tract (URT) which includes the larynx, pharynx and trachea, and lung hemorrhage. Respective Pmax calculations in kPa and corresponding ASII scores for the 6-exposure experiment subthreshold, threshold, and suprathreshold for URT and GI tract, and suprathreshold for lung hemorrhage were (50-0.00), (53-0.01), (69-0.06), and (277-1.07). As indicated in the table, the actual experimental no-injury Pmax was 36 kPa. The calculated Pmax's and corresponding ASII scores for the 50-exposure experiment sub-

threshold, threshold, and suprathreshold for URT and GI tract were (30-0.00), (34-0.01), and (46-0.10), respectively.

DISCUSSION

The subthreshold Pmax levels, calculated from the second order polynomial equations and their quadratic derivatives that are listed in Table 6 and illustrated in Figures 15 and 16, were based upon the Table 5 mean ASII values of 0.00 for both the 6- and 50-exposure experiments.

In the case of the 6-exposure experiment, the calculated subthreshold and threshold appear to be artificially high since the actual experimental no-injury point was 36 kPa. A review of the mean ASII values and of the pathology data presented in Table B-1 demonstrates that the lesions recorded at the 43- and 51-kPa exposure levels were very minor in nature and occurred at a 20-percent incidence rate or less. However, to be extremely safe, one should pick the actual experimental no-injury level of 36 kPa as the subthreshold.

On the other hand, the experimental no-injury level of 30 kPa in the 50-exposure experiment is exactly the same as the calculated subthreshold prediction, which places a high degree of reliability on this subthreshold.

The predicted nonauditory injury thresholds listed in Table 6 assumes that the control level ASII of 0.01 is the dividing line between injury and no injury. With this being the case, any data points with ASII scores >0.00, falling below the 53-kPa threshold in the 6-exposure experiment or the 34-kPa threshold in the 50-exposure experiment, would be false positives resulting from iatrogenic causes or disease. The calculated 34-kPa threshold for 50 exposures is almost the same as the 36-kPa experimental value.

The suprathresholds were based on eyeball fits of the mean ASII and incidence of injury data to the quadratic equations listed in Table 6 to derive the Pmax values. In the 6-exposure experiment, an ASII of 0.06 was picked to calculate the Pmax for the URT and GI tract inasmuch as lesions to both systems first appear at 0.06 and yields a Pmax of 69 kPa which is within 4 percent of the 72-kPa experimental level. An ASII of 1.07 was used to derive the lung suprathreshold Pmax of 277 in that there were no-lung injuries at ASII levels below this. Here again the calculated suprathreshold Pmax of 277 is within 4 percent of the 289-kPa experimental level. For the 50-exposure experiments, injuries to both the URT and the GI tract appear first at an ASII

of 0.10 which yields a suprathreshold Pmax of 46 which is also in good agreement with the 43-kPa experimental level.

It is informative to compare the results of this study to the results of two previous complex wave environment studies done at this laboratory.[6,7] Table 7 presents the incidence of injuries to the major gas containing organs and ASII levels as a function of Pmax, as well as control level ASII values, for the simulated weapons fired from an enclosure study, the 155mm self-propelled howitzer (sph) study, and this study. A log transformation was performed on the tabulated subthreshold Pmax values with respect to the number of blast exposures received and is illustrated in Figure 17 along with a listing of the number of blast exposures and corresponding calculated Pmax levels. The subthresholds from the 155mm sph study appear to be unduly low, thereby drawing the curve down when it should probably become asymptotic at 30 kPa for the 50-blast exposures. However, this curve appears to be the best fit of the available data and indicates safe no-injury levels of 44, 39, 35, 29, 26, and 22 kPa with 1, 3, 6, 25, 50, and 100 exposures, respectively. These experiments were performed in three quite different complex wave environments, with the 155mm sph waveform being the most different from the other two. This could possibly explain some of the variation in the data.

CONCLUSIONS

This study demonstrates that subjects can be exposed to Pmax levels consisting of 6 blasts of 36 kPa each and 50 blasts of 30 kPa each of the 120mm M121 mortar system type of waveform and sustain no injuries to trivial upper respiratory tract injuries at most. Assuming a control level ASII of 0.01, threshold injuries are calculated to occur at 53 and 34 kPa from 6- and 50-blast exposures, respectively. Suprathresholds for URT and GI tract lesions are predicted to be 69 and 46 kPa for 6 and 50 blasts each. A suprathreshold for lung hemorrhage is predicted at 277 kPa for 6 exposures.

The comparative analysis of the three complex wave studies demonstrates that the safe nonauditory subthreshold for as many as 100 complex blastwave exposures is 22 kPa. If the 155mm sph data points were eliminated, the maximum acceptable level would increase to 30 kPa and Pmax as a function of exposure number would become asymptotic at 50-blast exposures.

REFERENCES

1. Yelverton JT, Johnson DL, Hicks W and Doyal R. "Final Report: Blast Overpressure Studies with Animals and Man. Subtitle: Biological Response to Complex Blast Waves." Contract No. DAMD-17-88-C-8141, U.S. Army Medical Research and Development Command, October 1993.
2. Yelverton JT. "Pathology Scoring System for Blast Injuries." J.of Trauma: Injury, Infection, and Critical Care 40(3): s111-s115, 1996.
3. Yelverton JT, Johnson DL and Axelsson H. "Review of Nonauditory Effects of Blast Overpressure." Chapter 36, pp 447-461, *Scientific Basis of Noise-Induced Hearing Loss* (Eds Axelsson A, et al.), Thieme, New York, 1996.
4. Yelverton JT, Johnson DL, Hicks W and Doyal R. "Final Report: Blast Overpressure Studies with Animals and Man. Subtitle: Nonauditory damage risk assessment for simulated weapons fired from an enclosure." Contract No. DAMD-17-88-C-8141, U.S. Army Medical Research and Development Command, November 1993.
5. Yelverton JT, Johnson DL, Hicks W and Merickel B. "Final Report: Blast Overpressure Studies: Task Order 2. Subtitle: Nonauditory damage risk assessment for simulated 155mm self-propelled howitzer muzzle blast." Contract No. DAMD-17-93-C-3101, U.S. Army Medical Research and Materiel Command, September 1997.
6. Calabro SR. *Reliability Principles and Practices.* 371 pages, McGraw-Hill Book Company, Inc., 1962.

7. Thurmon JC, Kumar A, and Link RP. "Evaluation of Ketamine Hydrochloride as an Anesthetic in Sheep." J.A.V.M.A 162(4): 293-297, 1973.

8. Kumar A, et al. "Response of Goats to Ketamine Hydrochloride With and Without Premedication of Atropine, Acetylpromazine, Diazepam, or Xylazine." VM/SAC: 955-960, June 1983.

9. Axelsson H and Yelverton JT. "Chest Wall Velocity as a Predictor of Nonauditory blast Injury." J.of Trauma: Injury, Infection, and Critical Care 40(3): s31-s37, 1996.

Table 1. Experimental design for the 120mm M121 mortar system muzzle blast simulation study.

Exposure Parameter		Number of Sheep per Experiment	
Delta, dB	Exposure Level	6 Exposure Experiment	50 Exposure Experiment
0	1	2	
3	2	2	
6	5	10	
7.5	6	10	
9	7	10	10
10.5	8	36	10
12	9		40
	Subtotals	70	60
	Controls	10	10
	Totals	80	70

Table 2. Summary of the linear regression analyses for the various gauge calibration and test shots listed as a function of the charge weights and peak overpressures (Pmax) used in the sheep exposures during the 120mm M121 mortar system muzzle blast simulation study.

Gauge Descriptions and Linear Regression Equations	x Charge Weight, g	y Pmax, kPa
Calibration Instrument cylinders y = 0.1860x + 19.3435	1452	289
	997	205
	675	145
	447	102
	285	72
	171	51
	127	43
	90	36
	60	30
Shields y = 0.2393x +44.0629	1452	392
	997	283
	675	206
	447	151
	285	112
	171	85
	127	74
	90	66
	60	58
Test Shields y = 0.2225x + 47.4969	1452	374
	997	272
	675	199
	447	148
	285	112
	171	86
	127	76
	90	68
	60	61

Table 3. Exposure levels and number of sheep used for the 120mm M121 mortar system muzzle blast simulation study.

Exposure Levels			Number of Sheep per Experiment	
Delta, dB	Pmax, kPa	Charge Weight, g	6-Exposure Experiment	50-Exposure Experiment
0	289	1452	11	
3	205	997	2	
6	145	675	2	
9	102	447	2	
12	72	285	10	10
15	51	171	10	10
16.5	43	127	12	10
18	36	90	24	12
19.5	30	60		40
		Subtotals	73	82
		Controls	6	6
		Totals	79	88

Table 4. Distribution of lung Injury from 6-blast exposures as a function of orientation and predicted chest wall velocity in the 120mm M121 mortar system muzzle blast simulation study.

Instrument Cylinder Gauge No.	Measured Pmax, kPa	Predicted Chest Wall Velocity, m/s	Number of Animals with Trace to Slight Lung Injury	
			Rt. Lung	Lt. Lung
South Side			South Side**	North Side***
4	118	2.1		
5	298	2.6		
6	492	4.6*	(4/5)	(0/5)****
7	270	2.4		
North Side				
8	113	2.0		
9	227	2.4		
10	520	4.7*	(1/6)*****	(4/6)
11	258	2.7		

* Gauge facing shield

** Right side of animal facing shield

*** Left side of animal facing shield

**** Number of animals with injury./number exposed

***** Unusual location for hemorrhage, possible false positive. Sheep may have aspirated blood into lung from tracheal laceration.

Note. Predicted chest wall velocity range required to produce trace to slight lung injury from a single blast is 3.6 to 7.5 m/s.

Predictions based on calculations using a single degree of freedom injury prediction model described by Axelsson and Yelverton.[9]

Table 5. Incidence of lesions, mean adjusted severity of injury index (ASII), and accumulative incidence of lesions listed as a function of peak overpressure and number of exposures in the 120mm M121mortar muzzle blast simulation study.

Description	Incidence of Lesions				Mean	Description	Accumulative Incidence of Lesions			
kPa x reps*	Lungs	Phy/Lnyx	Trachea	GI Tract	ASII	kPa x reps*	Lungs	Phy/Lnyx	Trachea	GI Tract
289 x 6	(9/11)**	(11/11)	(11/11)	(6/11)	1.07					
205 x 6	(0/2)	(1/2)	(2/2)	(2/2)	0.88					
145 x 6	(0/2)	(1/2)	(2/2)	(1/2)	0.23					
102 x 6	(0/2)	(0/2)	(1/2)	(0/2)	0.05					
72 x 6	(0/10)	(1/10)	(5/10)	(1/10)	0.06	72 x 6, 50	(0/20)	(1/17)	(5/10)	(1/18)
51 x 6	(0/10)	(0/10)	(2/10)	(0/10)	0.02	51 x 6, 50	(0/20)	(0/19)	(2/13)	(0/19)
43 x 6	(0/12)	(2/12)	(1/12)	(0/12)	0.02	43 x 6, 50	(0/22)	(2/21)	(1/15)	(0/21)
36 x 6	(0/24)	(2/24)	(0/24)	(0/24)	0.00	36 x 6, 50	(0/36)	(2/35)	(0/35)	(0/36)
72 x 50	(0/10)	(3/10)	(10/10)	(2/10)	0.59					
51 x 50	(0/10)	(1/10)	(7/10)	(1/10)	0.14					
43 x 50	(0/10)	(1/10)	(7/10)	(1/10)	0.10					
36 x 50	(0/12)	(1/12)	(1/12)	(0/12)	0.01					
30 x 50	(0/40)	(2/40)	(0/40)	(0/40)	0.00					
Controls	(0/12)	(1/12)	(1/12)	(0/12)	0.01					

* Peak pressure (Pmax) in kPa times the number of exposures

** (r/n) = number of animals with lesions /sample size

Table 6. Predicted ASII and Pmax injury thresholds for 6- and 50-exposures to simulated 120mm M121 mortar system muzzle blasts.

Injury Level	Mean ASII*	Pmax, kPa**
6-Exposure Experiment		
For: ASII = $0.0000078(Pmax)^2 + 0.0021505(Pmax) - 0.1253668$		
Or: Pmax = $- 0.21505 + (0.085 + 0.312ASII)^{1/2} / 0.00156$		
Subthreshold	0.00	50(36)***
Threshold	0.01	53
Suprathreshold for URT & GI tract****	0.06	69
Suprathreshold for Lung Hemorrhage	1.07	277
50-Exposure Experiment		
For: ASII = $0.0003022(Pmax)^2 - 0.0168836(Pmax) + 0.2363709$		
Or: Pmax = $1.6836 + (- 0.006 + 12.088\ ASII)^{1/2} / 0.06044$		
Subthreshold	0.00	30
Threshold	0.01	34
Suprathreshold for URT & GI tract	0.10	46

* Adjusted Severity of Injury Index

** Peak Pressure

*** Actual experimental no-injury point was 36 kPa.

**** Upper respiratory tract and gastroenteric tract

Table 7. Comparison of current 120mm M121 mortar system results with those of firing from an enclosure and the 155mm self-propelled howitzer (sph) studies.

Study	Exposure Parameter		Incidence of Trace to Slight Lung Injury	Incidence of URT** Injury	Incidence of GI Tract Injury	ASII Injury Level	ASII Control Level
	Pmax, kPa*	Number of Blasts					
(1)	215	1	(2/2)***	(2/2)	(2/2)	0.29	0.02
Enclosure	130		(3/8)	(8/8)	(3/8)	0.18	
Partial Listing	106		(0/4)	(3/4)	(0/4)	0.09	
	88		(1/30)	(12/30)	(4/30)	0.05	
	64		(1/12)	(2/12)	(2/12)	0.03	
subthreshold	49		(0/40)	(4/40)	(0/40)	0.01	
	56	3	(4/20)	(9/20)	(3/20)	0.10	0.02
	49		(2/10)	(5/10)	(2/10)	0.09	
subthreshold	43		(0/40)	(4/40)	(0/40)	0.01	
subthreshold	30	100	(0/19)	(0/19)	(0/19)	0.00	0.02
(2)	32	6	(1/10)	(4/10)	(0/10)	0.05	0.01
155mm sph	27		(1/10)	(7/10)	(0/10)	0.05	
subthreshold	24		(0/30)	(3/30)	(0/30)	0.01	
	27	25	(0/10)	(6/10)	(0/10)	0.04	0.01
	24		(0/10)	(3/10)	(0/10)	0.02	
subthreshold	20		(0/10)	(0/10)	(0/10)	0.00	
subthreshold	20	100	(0/40)	(8/40)	(0/40)	0.01	0.01
(3)	289	6	(9/11)	(11/11)	(6/11)	1.07	0.01
120mm Mortar	205		(0/2)	(2/2)	(2/2)	0.88	
	145		(0/2)	(2/2)	(1/2)	0.23	
	102		(0/2)	(1/2)	(0/2)	0.05	
	72		(0/10)	(6/10)	(1/10)	0.06	
	51		(0/10)	(2/10)	(0/10)	0.02	
	43		(0/12)	(3/12)	(0/12)	0.02	
subthreshold	36		(0/24)	(2/24)	(0/24)	0.00	
	72	50	(0/10)	(10/10)	(2/10)	0.59	0.01
	51		(0/10)	(8/10)	(1/10)	0.14	
	43		(0/10)	(8/10)	(1/10)	0.10	
	36		(0/12)	(2/12)	(0/12)	0.01	
subthreshold	30		(0/40)	(2/40)	(0/40)	0.00	

(1) Yelverton JT, Johnson DL, Hicks W and Doyal R: Nonauditory damage risk assessment for simulated weapons fired from an enclosure.

(2) Yelverton JT, Johnson DL, Hicks W and Doyal R: Nonauditory damage risk assessment for sim-155mm self-propelled howitzer muzzle blast.

Note. Enclosure study ASII control level adjusted to 0.02 to reflect the addition of two more control animals to the group.

* Pmax = Peak pressure

** Upper Respiratory Tract (URT) is the pharynx, larynx, and trachea combined.

*** (r/n) = Number of animals with lesion/sample size

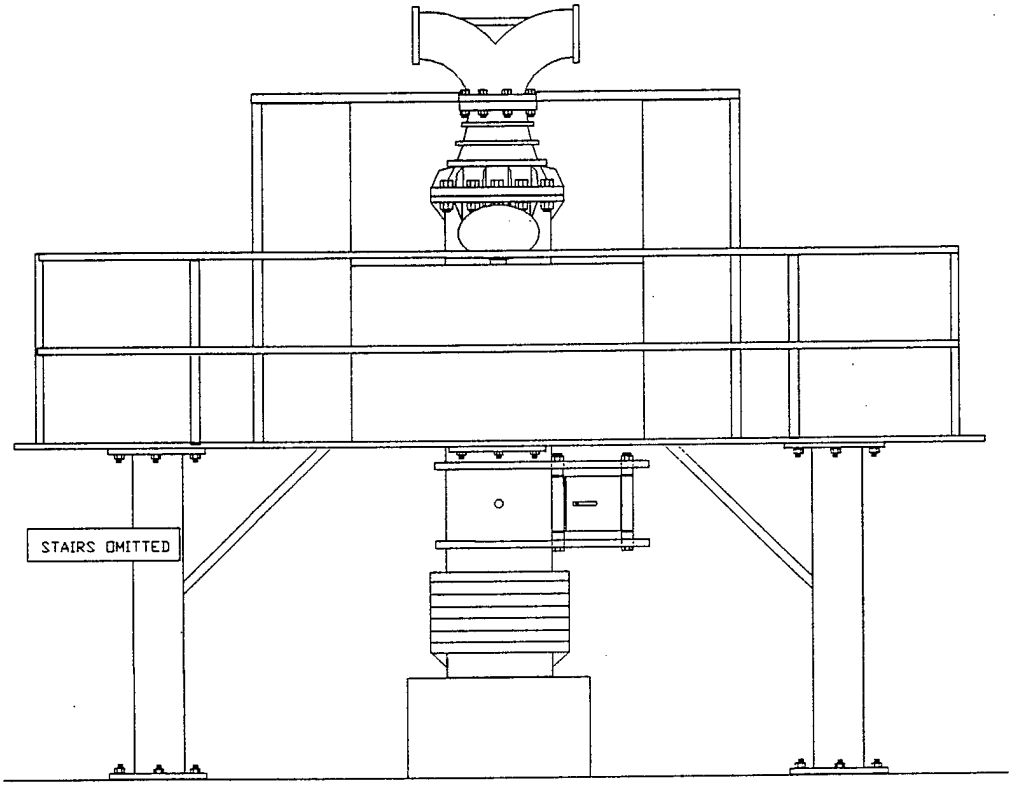


Figure 1.Side-view of the 120mm M121 mortar system muzzle blast simulator.

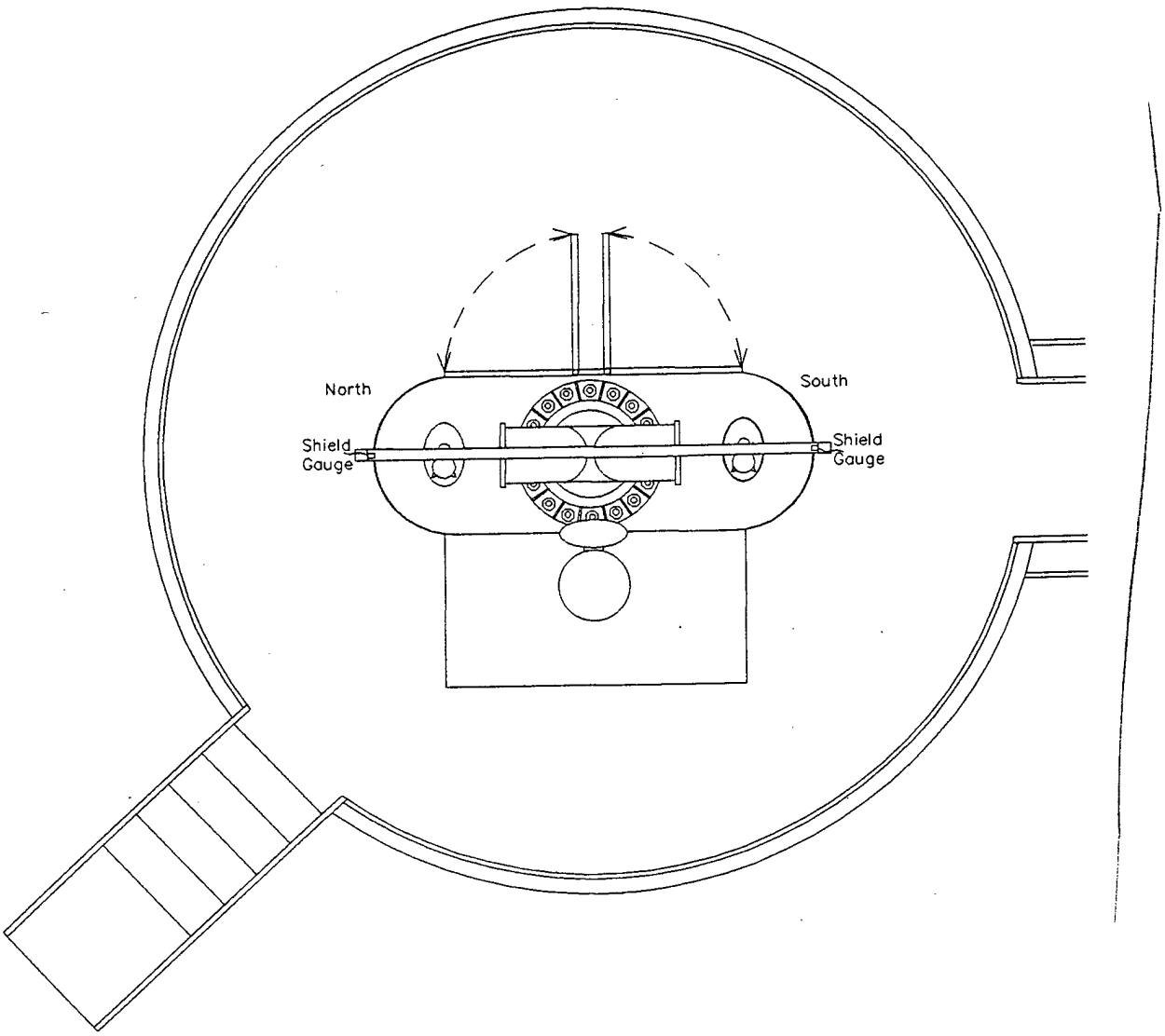


Figure 2. Overhead view of the 120mm M121 mortar system muzzle blast simulator with sheep in their north and south test positions.

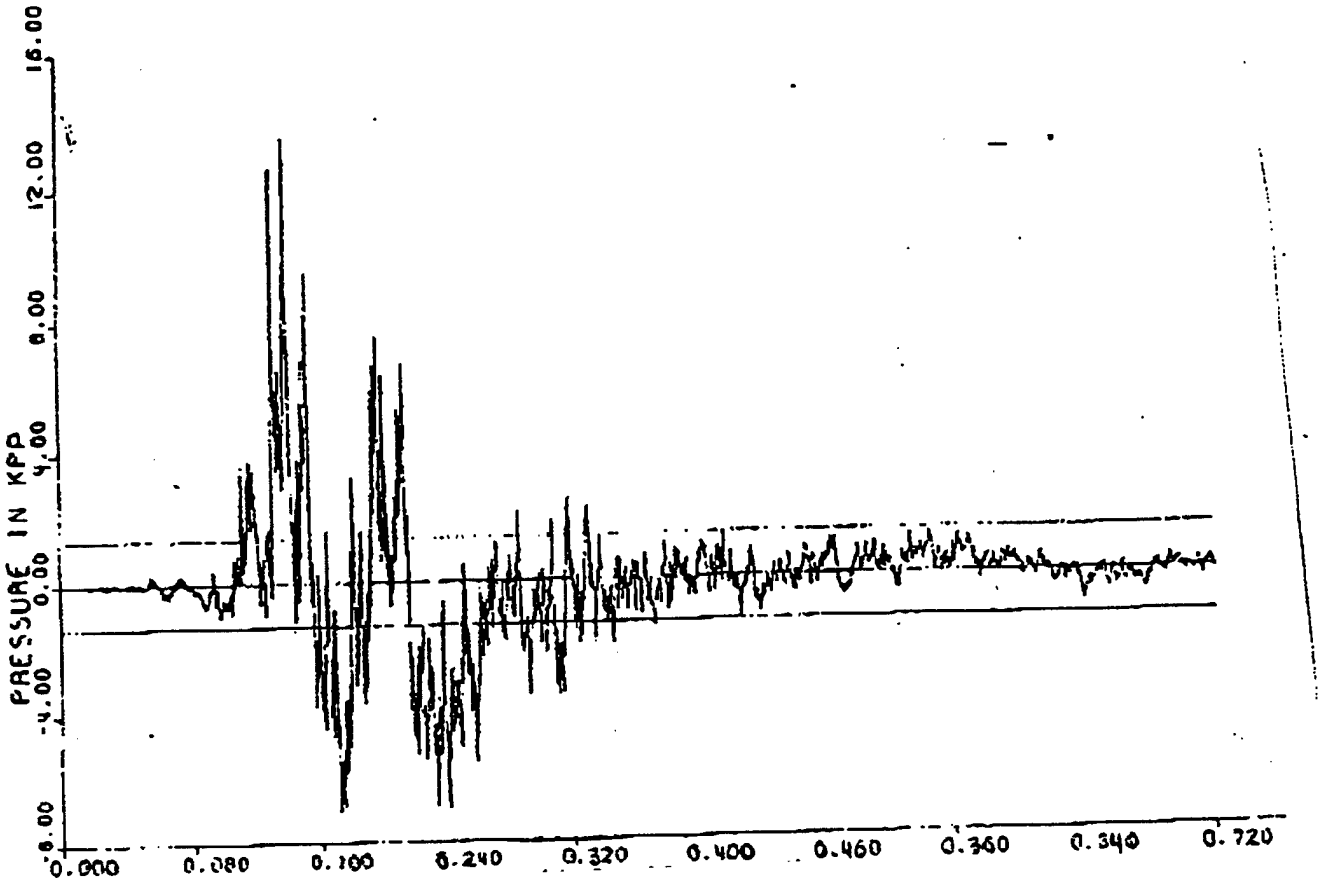


Figure 3. Pressure-time pattern recorded at the assistant gunner's position in the 120mm M121 mortar system during an M933 round firing with the barrel at 1215 mils, fitted with a blast attenuation device and armored personnel carrier ramp up.

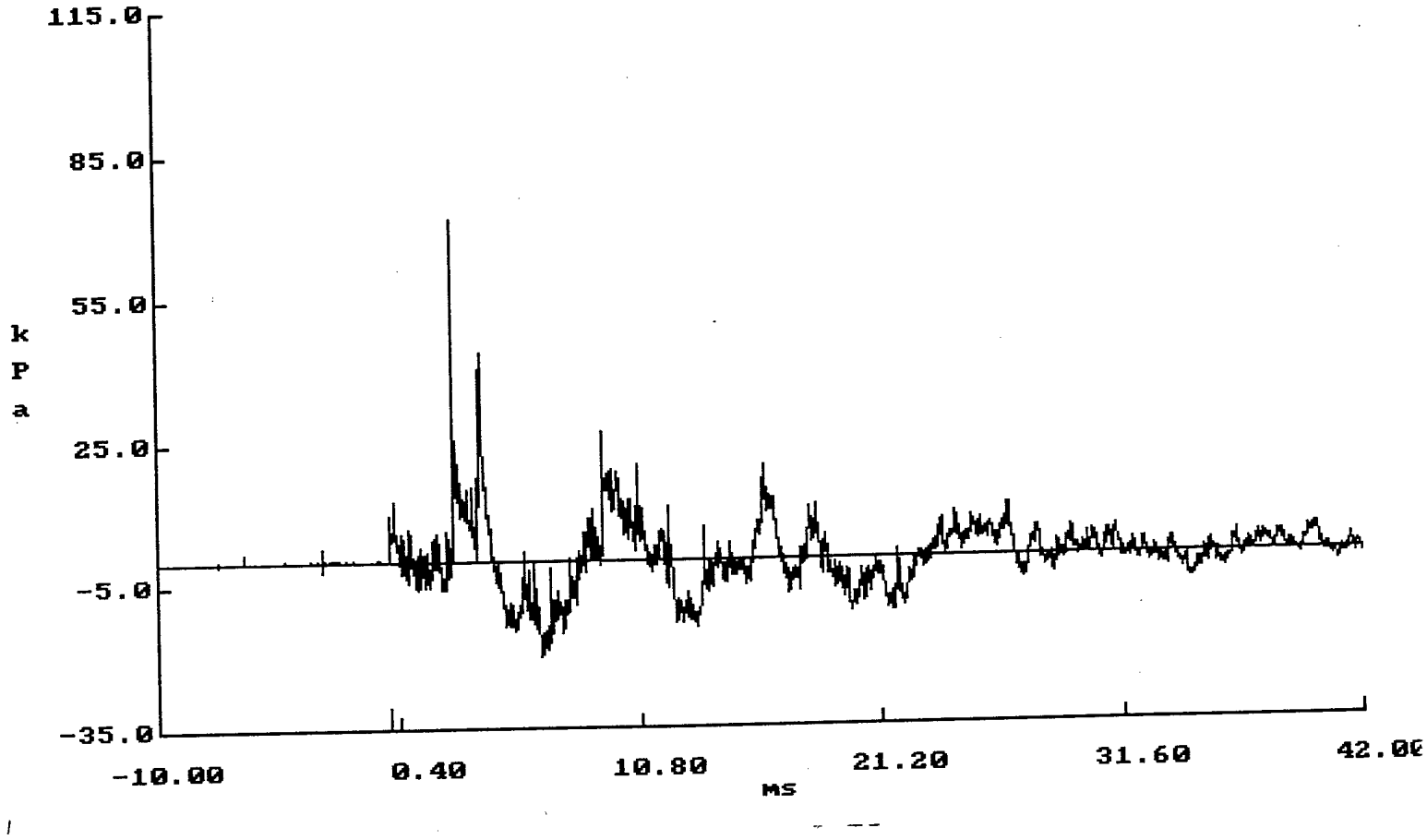


Figure 4. Pressure-time pattern recorded by side-on gauge in the north test position of the 120mm M121 mortar system blast simulator during the firing of a 171g C-4 charge.

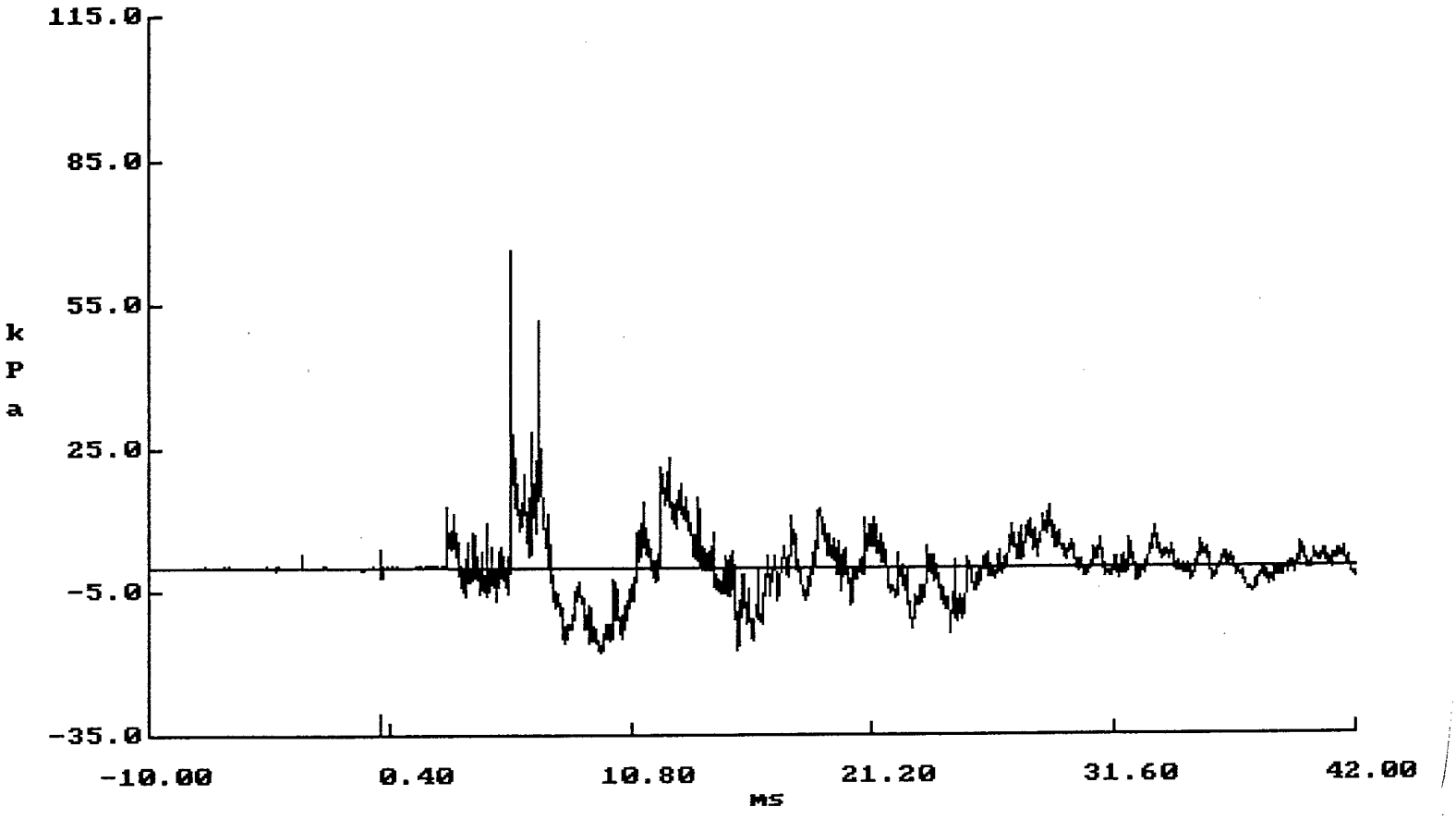


Figure 5. Pressure-time pattern recorded by side-on gauge in the south test position of the 120mm M121 mortar system blast simulator during the firing of a 171g C-4 charge.

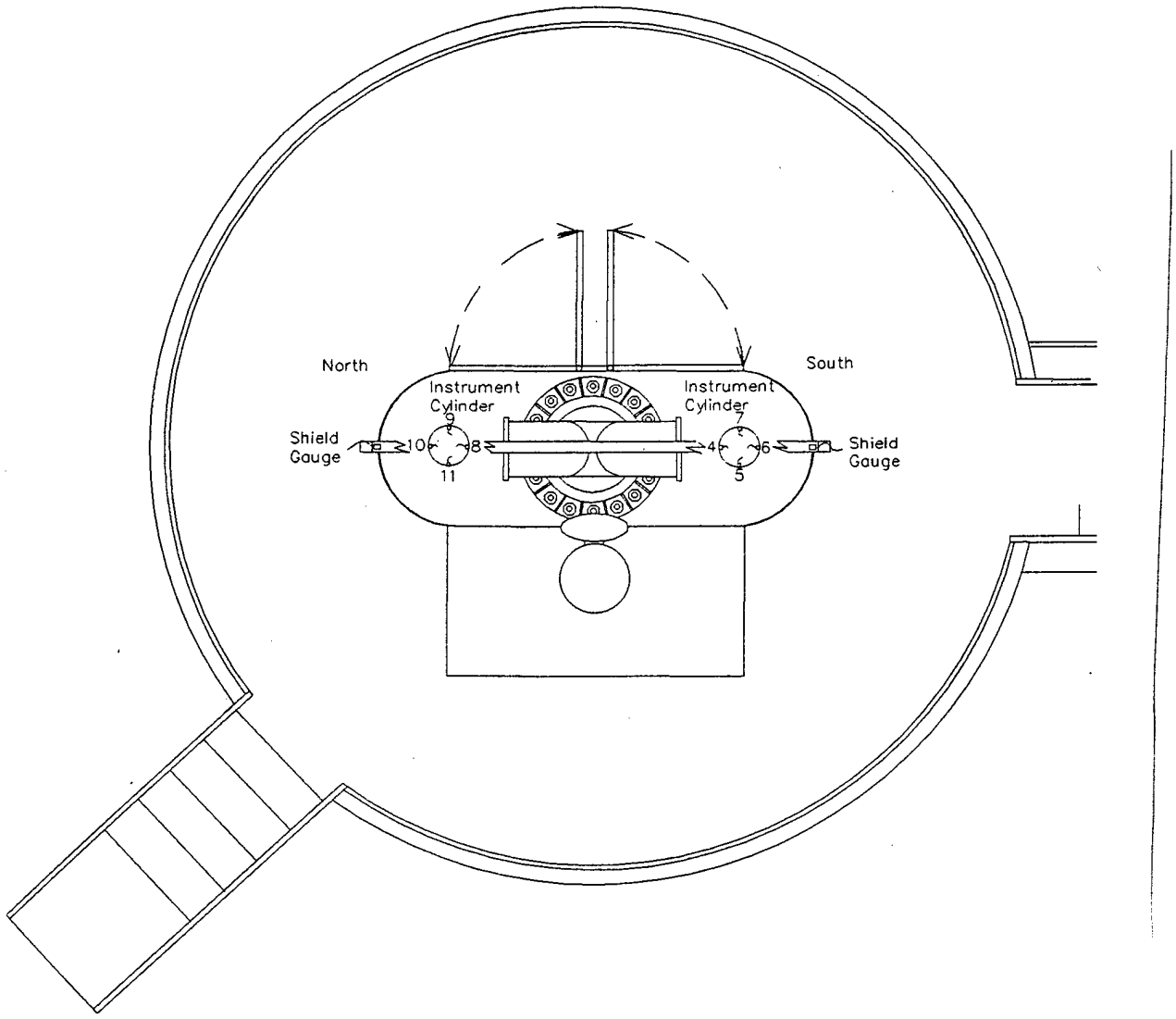


Figure 6. Overhead view of the 120mm M121 mortar system blast simulator with shield monitor gauges and instrumentation cylinders in their respective north and south test positions during calibration data development.

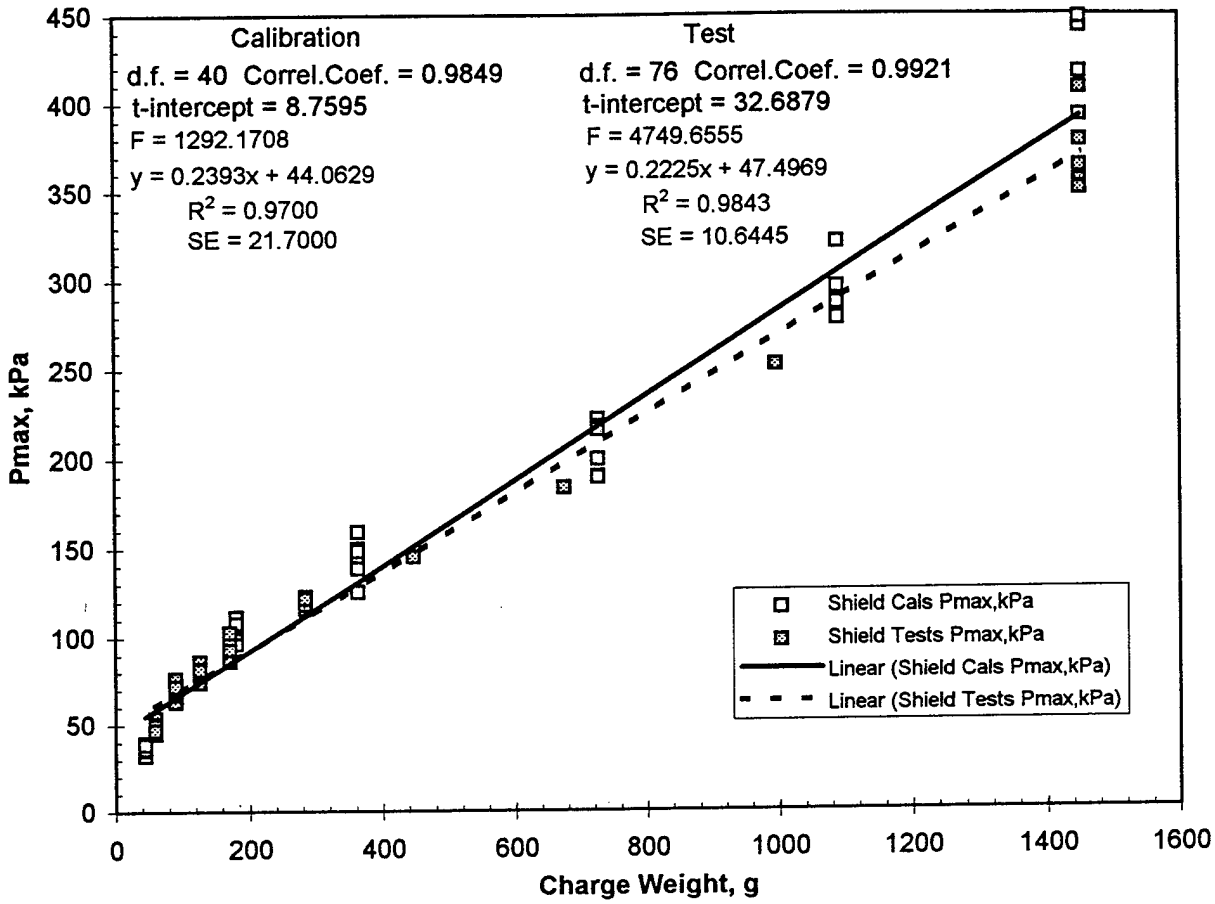


Figure 7. 120mm M121 mortar system simulation peak overpressure comparison between calibration and mean test value regressions for the north and south shield monitor gauges.

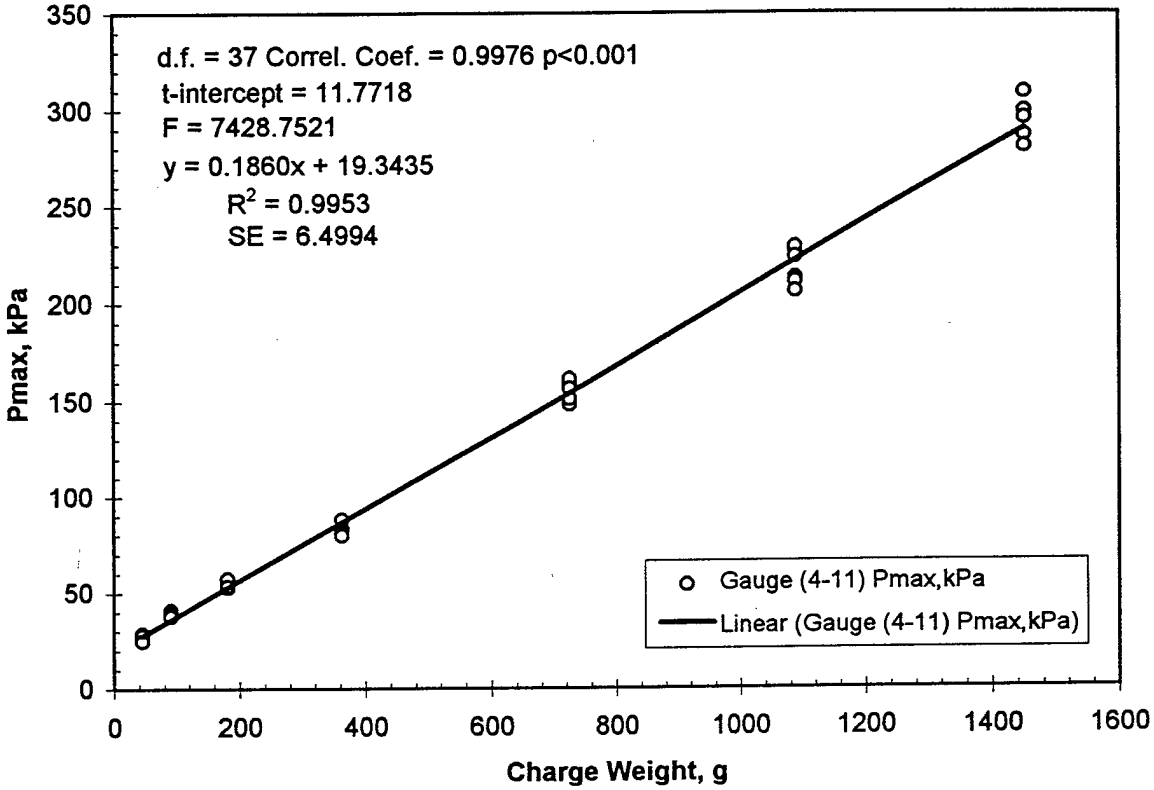


Figure 8. 120mm M121 mortar system simulation peak overpressure calibration curve for the four gauge average per data point values of the north and south instrumentation cylinders.

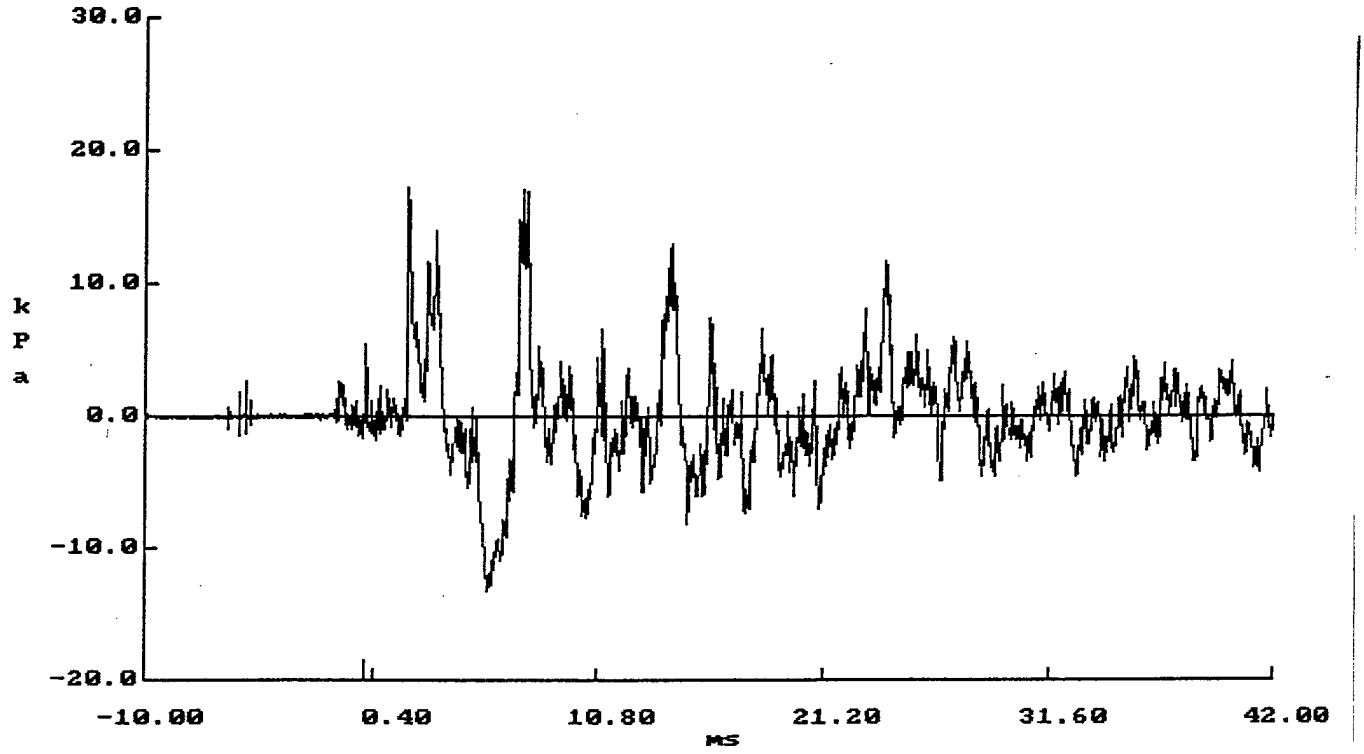


Figure 9. 120mm M121 mortar system muzzle blast simulation pressure-time pattern recorded by the south instrument cylinder number 4 gauge during the firing of a 91g C-4 charge in the simulator.

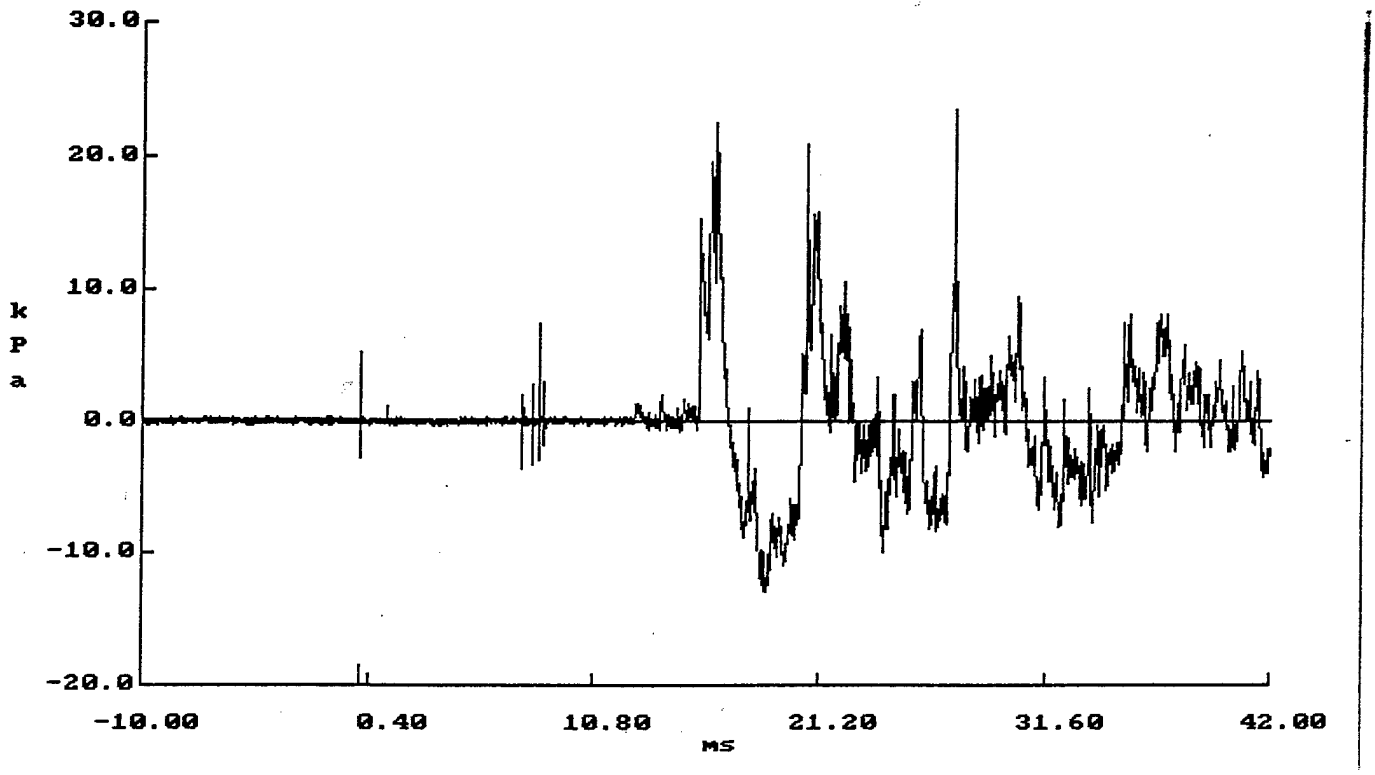


Figure 10. 120mm M121 mortar system muzzle blast simulation pressure-time pattern recorded by the south instrument cylinder number 5 gauge during the firing of a 91g C-4 charge in the simulator.

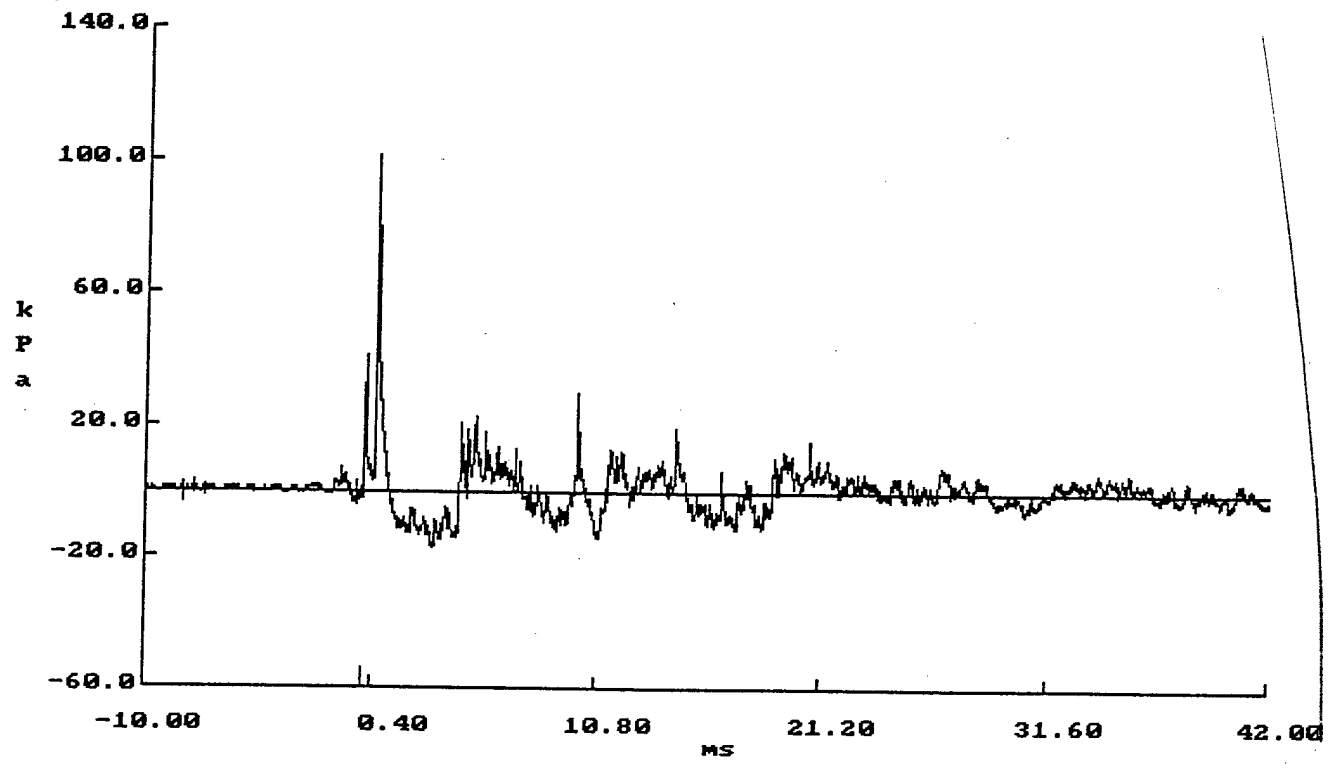


Figure 11. 120mm M121 mortar system muzzle blast simulation pressure-time pattern recorded by the south instrument cylinder number 6 gauge during the firing of a 91g C-4 charge in the simulator.

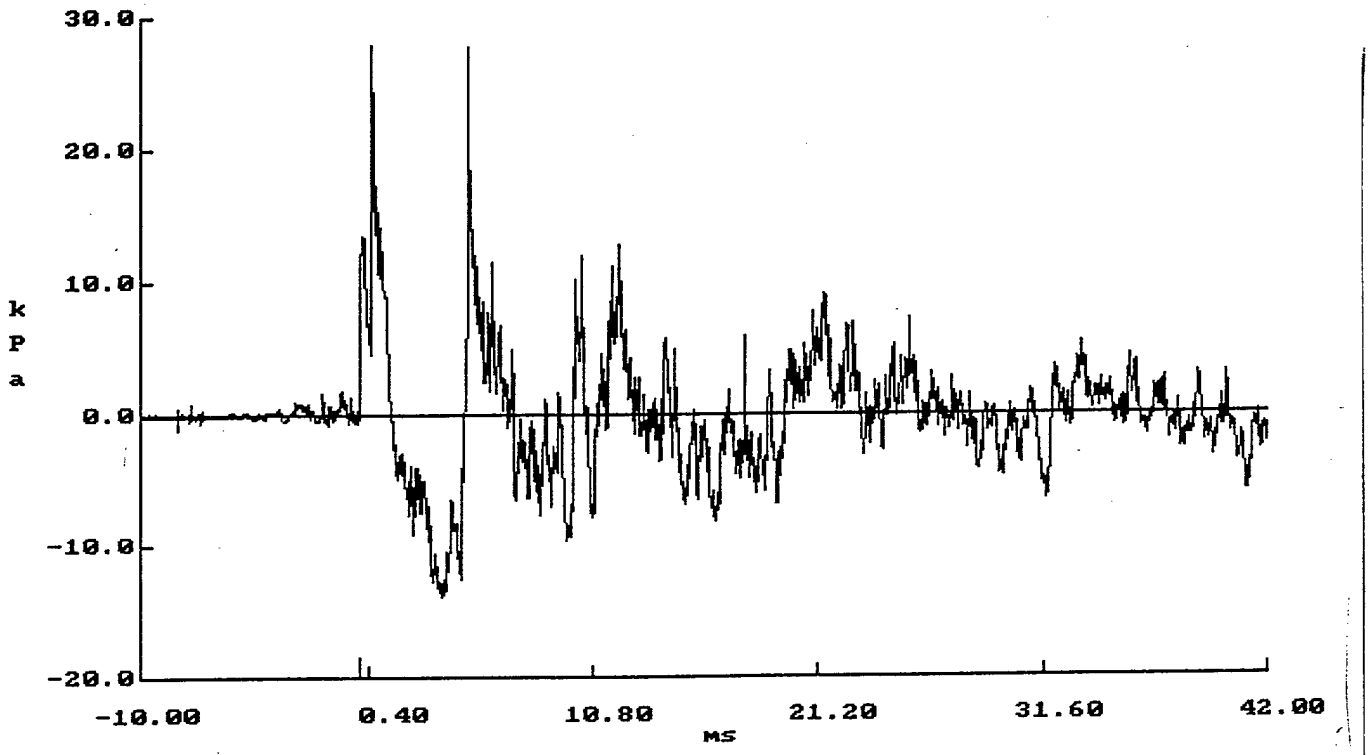


Figure 12. 120mm M121 mortar system muzzle blast simulation pressure-time pattern recorded by the south instrument cylinder number 7 gauge during the firing of a 91g C-4 charge in the simulator.

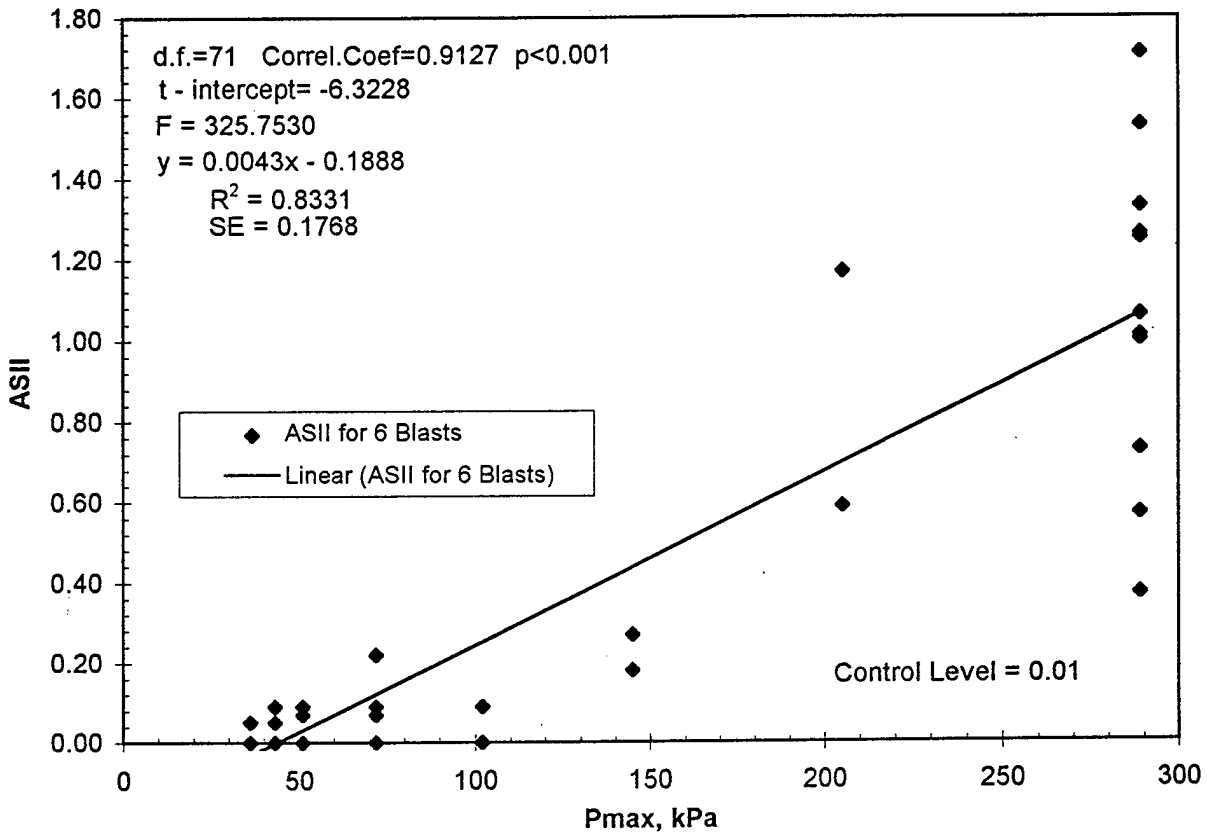


Figure 13. 120mm M121 mortar system simulation gross pathology results for 6 blast exposures.

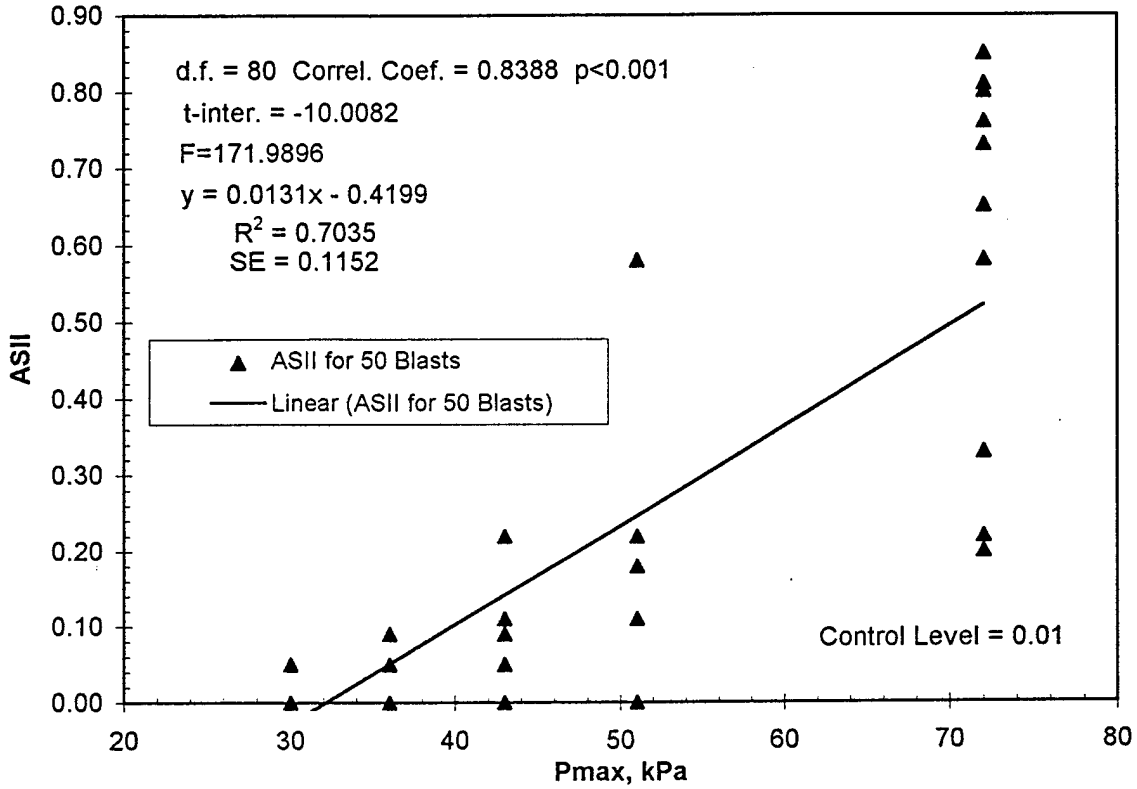


Figure 14. 120mm M121 mortar system simulation gross pathology results for 50 blast exposures.

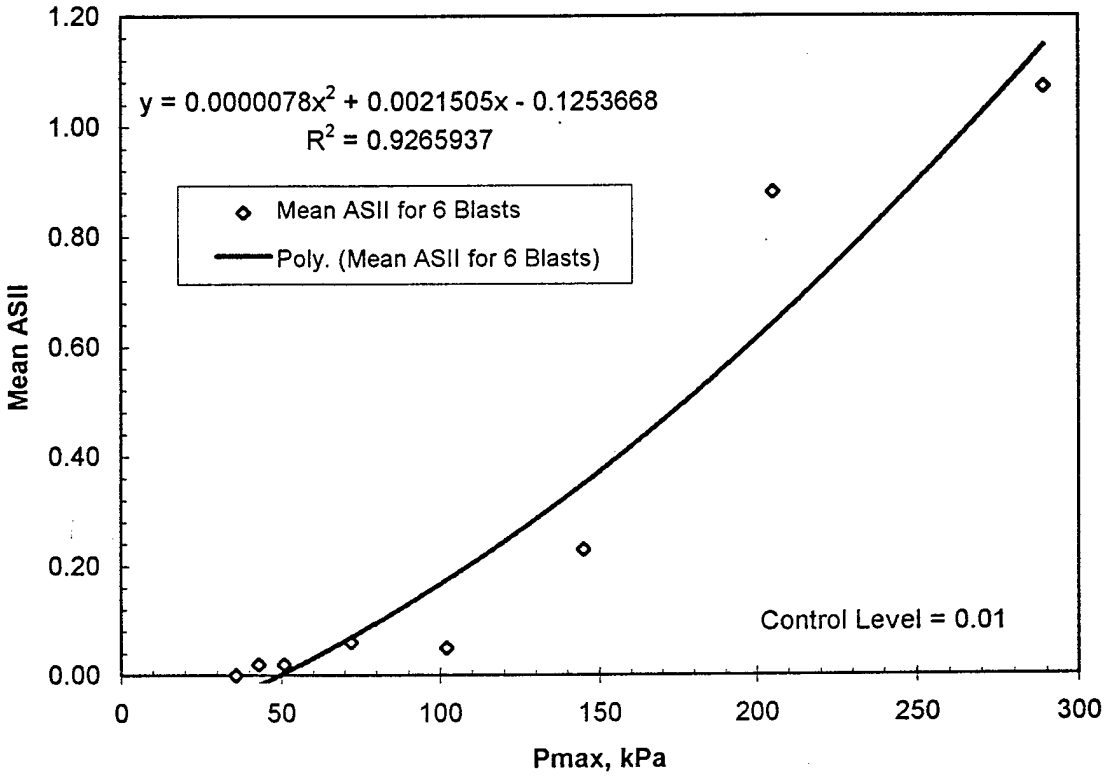


Figure 15. 120mm M121 mortar system simulation mean gross pathology results for 6 blast exposures.

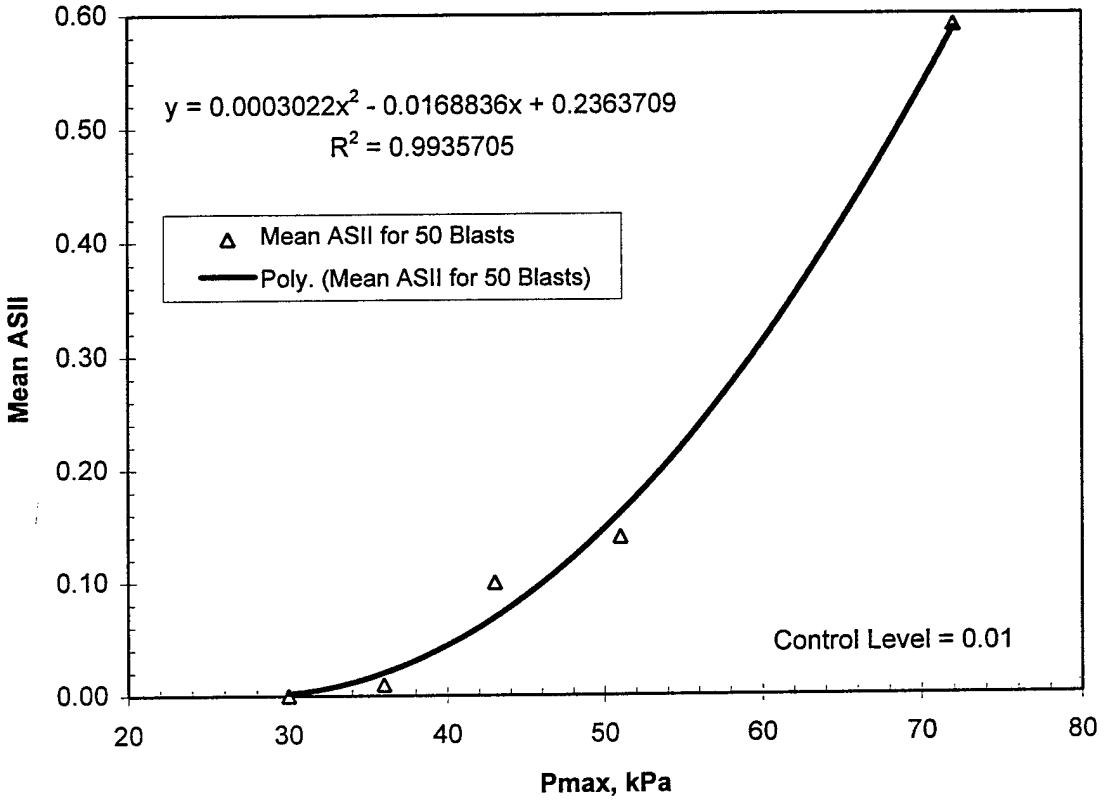


Figure 16. 120mm M121 mortar system simulation mean gross pathology results for 50 blast exposures.

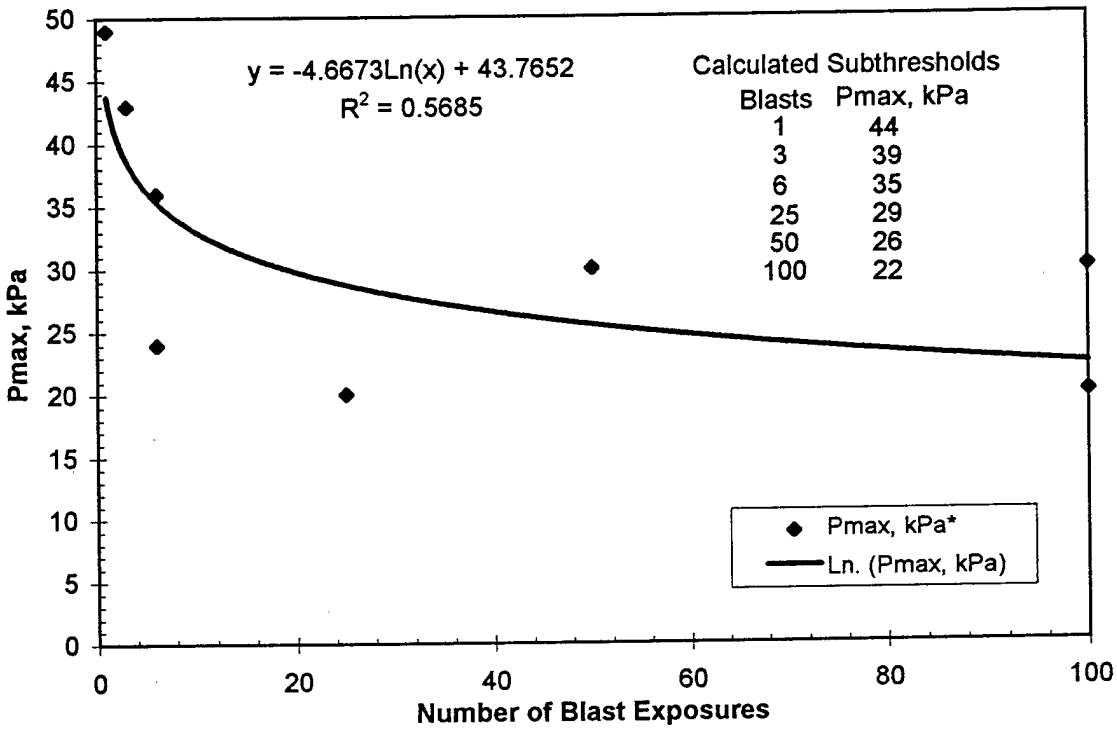


Figure 17. Subthreshold for nonauditory blast injury as a function of peak pressure(Pmax) and number of blast exposures.

APPENDICES

Appendix A

Pressure-Time Calibrations

Table A - 1. Summary of 120mm M121 mortar system muzzle blast simulation instrumentation cylinder and shield pressure-time calibration values.

Date	Shot Number	Charge Weight,g	Gage Location	Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-impulse kPa*ms	Psm, kPa
8/1/96	S01C42	45	North Shield	31.9	31.3	1.0	36.1	91.3	17.6	6.5
8/1/96	S01C42	45	South Shield	35.1	34.6	1.0	37.1	75.2	17.2	6.3
8/1/96	S01C42	45	Cylinder 4	13.5	13.5	0.6	74.0	108.8	3.2	2.6
8/1/96	S01C42	45	Cylinder 5	11.1	10.3	1.8	104.3	249.4	7.9	3.3
8/1/96	S01C42	45	Cylinder 6	75.4	10.8	1.2	21.9	42.7	14.2	5.2
8/1/96	S01C42	45	Cylinder 7	15.4	7.2	1.5	63.4	107.4	9.7	3.4
8/1/96	S01C42	45	Cylinder 8	12.9	12.9	0.8	78.0	100.8	3.3	2.5
8/1/96	S01C42	45	Cylinder 9	11.0	9.0	1.6	105.5	140.3	7.3	3.3
8/1/96	S01C42	45	Cylinder 10	60.6	8.0	1.2	25.8	38.0	14.9	5.4
8/1/96	S01C42	45	Cylinder 11	15.4	8.8	1.5	63.5	121.3	9.6	3.5
8/1/96	S02C42	91	North Shield	66.9	66.9	0.9	23.6	46.7	26.8	10.5
8/1/96	S02C42	91	South Shield	73.4	73.4	1.1	21.3	68.3	25.7	9.8
8/1/96	S02C42	91	Cylinder 4	12.2	5.4	1.7	95.6	138.4	12.0	4.3
8/1/96	S02C42	91	Cylinder 5	23.5	15.2	0.5	65.3	92.6	3.2	5.1
8/1/96	S02C42	91	Cylinder 6	101.0	14.1	1.2	20.7	49.9	23.1	8.4
8/1/96	S02C42	91	Cylinder 7	27.8	13.5	1.5	48.5	93.0	14.9	5.4
8/1/96	S02C42	91	Cylinder 8	18.7	4.8	0.9	82.0	111.7	7.3	4.3
8/1/96	S02C42	91	Cylinder 9	17.7	14.5	1.4	77.7	127.7	14.0	5.0
8/1/96	S02C42	91	Cylinder 10	97.7	20.4	1.3	21.1	35.5	23.4	8.5
8/1/96	S02C42	91	Cylinder 11	25.5	12.5	1.0	59.5	92.3	9.5	5.4
8/1/96	S03C42	181	North Shield	111.4	17.5	1.0	27.9	44.0	40.1	15.3
8/1/96	S03C42	181	South Shield	103.8	25.6	1.4	32.9	57.7	36.7	13.9
8/1/96	S03C42	181	Cylinder 4	29.5	5.1	1.0	68.9	114.8	8.8	6.7
8/1/96	S03C42	181	Cylinder 5	37.6	10.1	1.2	71.8	102.4	21.3	7.7
8/1/96	S03C42	181	Cylinder 6	94.8	19.4	1.2	37.1	57.3	31.2	11.8
8/1/96	S03C42	181	Cylinder 7	48.3	20.7	1.7	54.9	83.5	22.3	8.0
8/1/96	S03C42	181	Cylinder 8	26.9	9.5	1.7	71.1	136.3	18.6	6.7
8/1/96	S03C42	181	Cylinder 9	35.4	19.4	1.5	59.3	93.4	20.7	7.6
8/1/96	S03C42	181	Cylinder 10	116.2	21.0	1.1	21.2	41.3	33.4	12.5
8/1/96	S03C42	181	Cylinder 11	50.3	21.3	1.2	46.0	71.3	23.1	8.3
8/1/96	S04C42	363	North Shield	125.4	125.4	2.0	38.9	125.0	58.1	20.5
8/1/96	S04C42	363	South Shield	142.6	18.2	1.5	36.3	55.0	52.1	21.6
8/1/96	S04C42	363	Cylinder 4	36.7	13.7	1.6	71.8	121.6	27.4	9.5
8/1/96	S04C42	363	Cylinder 5	80.3	31.6	1.1	41.0	75.3	29.5	10.8
8/1/96	S04C42	363	Cylinder 6	143.5	80.2	1.5	27.0	46.9	46.3	16.7
8/1/96	S04C42	363	Cylinder 7	70.3	27.0	1.2	41.8	68.5	30.0	11.0
8/1/96	S04C42	363	Cylinder 8	37.1	7.3	1.8	80.1	126.4	27.8	9.3
8/1/96	S04C42	363	Cylinder 9	59.6	23.3	1.4	45.7	85.1	29.5	10.6
8/1/96	S04C42	363	Cylinder 10	160.8	37.2	1.5	20.7	34.7	46.9	17.1
8/1/96	S04C42	363	Cylinder 11	94.8	29.5	1.3	32.6	60.9	31.9	11.4
8/1/96	S05C42	726	North Shield	199.5	33.7	1.0	57.4	272.7	78.3	30.1
8/1/96	S05C42	726	South Shield	189.9	36.2	1.5	28.4	216.8	84.7	29.9
8/1/96	S05C42	726	Cylinder 4	71.2	12.2	1.5	42.2	101.4	40.3	14.8
8/1/96	S05C42	726	Cylinder 5	143.6	21.5	1.0	27.6	52.3	43.6	16.0
8/1/96	S05C42	726	Cylinder 6	251.2	251.2	1.0	13.6	27.1	74.4	27.1
8/1/96	S05C42	726	Cylinder 7	127.8	29.1	1.1	34.1	56.0	46.3	16.4
8/1/96	S05C42	726	Cylinder 8	83.4	13.0	1.6	45.8	87.4	39.3	14.2

Table A - 1. Summary of 120mm M121 mortar system muzzle blast simulation instrumentation cylinder and shield pressure-time calibration values.

Date	Shot Number	Charge Weight,g	Gage Location	Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-impulse kPa*ms	Psm, kPa
8/1/96	S05C42	726	Cylinder 9	118.4	22.0	1.3	26.4	63.1	40.0	15.4
8/1/96	S05C42	726	Cylinder 10	282.5	282.5	1.0	7.1	33.6	74.3	26.7
8/1/96	S05C42	726	Cylinder 11	150.1	32.6	1.0	18.3	45.5	42.4	16.2
8/1/96	S06C42	1089	North Shield	320.9	320.9	1.2	7.1	47.2	117.5	42.2
8/1/96	S06C42	1089	South Shield	286.0	286.0	1.2	110.8	327.0	113.0	40.6
8/1/96	S06C42	1089	Cylinder 4	99.1	21.5	1.6	41.5	45.3	55.5	20.6
8/1/96	S06C42	1089	Cylinder 5	209.5	35.6	1.1	18.4	42.1	56.4	20.9
8/1/96	S06C42	1089	Cylinder 6	423.3	423.3	1.8	4.9	28.0	108.2	38.0
8/1/96	S06C42	1089	Cylinder 7	174.8	33.1	1.0	24.7	44.1	57.4	21.1
8/1/96	S06C42	1089	Cylinder 8	86.4	14.6	1.6	53.1	85.6	51.5	18.7
8/1/96	S06C42	1089	Cylinder 9	193.9	32.9	1.0	18.8	41.9	52.0	19.5
8/1/96	S06C42	1089	Cylinder 10	401.0	401.0	1.0	6.3	19.8	101.7	36.7
8/1/96	S06C42	1089	Cylinder 11	232.5	232.5	0.9	18.7	33.7	56.7	20.7
8/1/96	S07C42	1452	North Shield	442.7	442.7	1.0	53.2	223.6	130.4	46.7
8/1/96	S07C42	1452	South Shield	391.9	391.9	1.5	115.3	338.0	137.1	48.7
8/1/96	S07C42	1452	Cylinder 4	97.0	18.9	1.7	43.5	60.0	62.5	23.5
8/1/96	S07C42	1452	Cylinder 5	293.6	293.6	1.0	5.6	18.9	65.0	24.4
8/1/96	S07C42	1452	Cylinder 6	505.7	505.7	1.6	11.5	20.6	126.5	44.6
8/1/96	S07C42	1452	Cylinder 7	297.6	297.6	1.2	11.7	25.2	67.8	24.6
8/1/96	S07C42	1452	Cylinder 8	144.3	24.0	1.8	36.8	61.1	63.7	22.9
8/1/96	S07C42	1452	Cylinder 9	221.9	38.8	0.8	18.2	157.7	58.9	22.7
8/1/96	S07C42	1452	Cylinder 10	516.8	516.8	1.0	4.8	241.0	118.9	43.0
8/1/96	S07C42	1452	Cylinder 11	260.5	260.5	0.9	17.4	34.0	67.0	24.7
8/1/96	S08C42	45	North Shield	39.7	39.7	1.2	36.8	55.0	17.8	12.6
8/1/96	S08C42	45	South Shield	36.7	36.7	1.3	50.8	86.0	17.2	12.2
8/1/96	S08C42	45	Cylinder 4	15.7	14.0	0.3	53.0	86.2	0.6	3.9
8/1/96	S08C42	45	Cylinder 5	35.2	9.5	1.2	34.5	70.0	6.4	6.2
8/1/96	S08C42	45	Cylinder 6	68.6	15.4	1.0	22.0	43.7	14.0	10.0
8/1/96	S08C42	45	Cylinder 7							
8/1/96	S08C42	45	Cylinder 8	12.8	12.8	2.2	91.6	141.4	7.3	3.9
8/1/96	S08C42	45	Cylinder 9	15.0	10.5	1.6	74.2	140.1	7.3	6.2
8/1/96	S08C42	45	Cylinder 10	67.0	11.4	1.1	21.5	43.2	14.7	10.0
8/1/96	S08C42	45	Cylinder 11	12.7	9.4	1.6	86.4	125.7	9.5	6.6
8/1/96	S09C42	91	North Shield	65.1	65.1	0.9	23.5	48.6	26.2	18.0
8/1/96	S09C42	91	South Shield	73.3	73.3	1.0	21.8	65.5	25.5	18.4
8/1/96	S09C42	91	Cylinder 4	18.0	17.2	1.1	73.9	102.1	6.8	7.6
8/1/96	S09C42	91	Cylinder 5	24.4	14.6	1.4	77.8	99.5	10.0	10.0
8/1/96	S09C42	91	Cylinder 6	111.6	30.9	1.1	20.5	23.2	22.5	15.8
8/1/96	S09C42	91	Cylinder 7							
8/1/96	S09C42	91	Cylinder 8	16.2	12.5	2.0	72.2	142.0	11.9	6.5
8/1/96	S09C42	91	Cylinder 9	18.0	14.8	1.5	81.2	131.1	14.1	9.8
8/1/96	S09C42	91	Cylinder 10	90.9	17.3	1.3	20.9	35.5	22.5	15.9
8/1/96	S09C42	91	Cylinder 11	32.7	13.6	1.0	41.0	66.2	9.0	10.2
8/2/96	S10C42	181	North Shield	96.5	96.5	1.1	22.4	182.1	38.6	27.5
8/2/96	S10C42	181	South Shield	102.7	102.7	1.6	27.4	68.4	40.4	28.5
8/2/96	S10C42	181	Cylinder 4	22.6	4.9	1.2	76.9	128.7	12.1	12.6
8/2/96	S10C42	181	Cylinder 5	37.8	19.1	1.3	67.8	103.9	22.2	15.7

Table A - 1. Summary of 120mm M121 mortar system muzzle blast simulation instrumentation cylinder and shield pressure-time calibration values.

Date	Shot Number	Charge Weight,g	Gage Location	Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-impulse kPa*ms	Psm, kPa
8/2/96	S10C42	181	Cylinder 6	120.4	22.9	1.2	24.4	35.6	33.0	23.2
8/2/96	S10C42	181	Cylinder 7	45.4	18.6	1.4	42.3	79.3	22.2	15.7
8/2/96	S10C42	181	Cylinder 8	25.2	5.2	1.3	79.3	129.7	8.2	12.0
8/2/96	S10C42	181	Cylinder 9	32.6	17.6	1.5	66.3	114.9	21.3	14.9
8/2/96	S10C42	181	Cylinder 10	123.1	19.2	1.2	20.6	42.4	33.0	22.9
8/2/96	S10C42	181	Cylinder 11	46.6	21.4	1.2	46.4	79.6	22.4	15.9
8/2/96	S11C42	363	North Shield	149.9	145.7	1.0	32.6	41.1	50.7	37.4
8/2/96	S11C42	363	South Shield	159.1	159.1	2.0	23.0	196.1	61.0	39.8
8/2/96	S11C42	363	Cylinder 4	37.1	7.8	1.7	64.7	110.4	28.7	19.6
8/2/96	S11C42	363	Cylinder 5	69.2	33.1	1.5	38.8	90.6	31.4	22.2
8/2/96	S11C42	363	Cylinder 6	147.5	69.4	1.3	26.3	36.0	47.6	33.7
8/2/96	S11C42	363	Cylinder 7	66.2	27.4	1.5	49.1	80.7	32.6	23.0
8/2/96	S11C42	363	Cylinder 8	38.0	6.0	1.7	80.7	131.2	28.5	19.2
8/2/96	S11C42	363	Cylinder 9	68.8	28.1	1.1	49.6	76.9	28.4	21.1
8/2/96	S11C42	363	Cylinder 10	153.9	35.2	1.5	21.0	33.7	46.5	32.9
8/2/96	S11C42	363	Cylinder 11	72.9	34.6	1.4	46.2	84.3	31.1	22.0
8/2/96	S12C42	726	North Shield	221.8	33.7	2.0	22.9	102.7	91.5	64.0
8/2/96	S12C42	726	South Shield	217.8	39.6	1.8	14.4	189.8	91.6	63.1
8/2/96	S12C42	726	Cylinder 4	92.4	14.7	1.5	42.7	75.0	39.6	27.9
8/2/96	S12C42	726	Cylinder 5	146.2	26.0	1.2	32.5	57.2	44.2	31.2
8/2/96	S12C42	726	Cylinder 6	255.2	255.2	1.0	17.2	38.8	73.7	51.7
8/2/96	S12C42	726	Cylinder 7	112.7	19.2	1.2	26.8	59.3	43.9	30.6
8/2/96	S12C42	726	Cylinder 8	90.4	17.3	1.6	46.1	87.4	41.9	28.6
8/2/96	S12C42	726	Cylinder 9	117.0	27.7	1.3	38.1	48.9	41.1	29.1
8/2/96	S12C42	726	Cylinder 10	287.3	287.3	1.0	7.0	21.1	72.5	51.5
8/2/96	S12C42	726	Cylinder 11	151.9	25.6	1.2	25.0	53.7	44.8	31.6
8/2/96	S13C42	1089	North Shield	289.5	47.8	2.0	107.6	161.0	115.1	80.3
8/2/96	S13C42	1089	South Shield	286.7	286.7	1.2	13.2	263.0	111.3	79.3
8/2/96	S13C42	1089	Cylinder 4	86.0	15.4	1.7	46.3	72.3	54.1	35.8
8/2/96	S13C42	1089	Cylinder 5	189.3	34.8	1.2	18.1	34.7	56.1	40.0
8/2/96	S13C42	1089	Cylinder 6	386.1	386.1	1.8	11.9	32.5	107.1	74.6
8/2/96	S13C42	1089	Cylinder 7	189.7	37.5	1.1	26.1	49.2	56.8	40.4
8/2/96	S13C42	1089	Cylinder 8	118.5	42.7	1.6	44.2	79.2	54.1	38.1
8/2/96	S13C42	1089	Cylinder 9	187.4	34.7	1.1	26.2	37.9	50.7	36.7
8/2/96	S13C42	1089	Cylinder 10	366.5	366.5	1.1	10.8	192.4	96.7	67.9
8/2/96	S13C42	1089	Cylinder 11	221.1	221.1	1.5	17.6	39.5	56.6	40.0
8/2/96	S14C42	1452	North Shield	447.8	447.8	0.9	90.8	141.9	145.1	104.3
8/2/96	S14C42	1452	South Shield	416.6	411.4	1.2	163.9	263.3	139.6	101.4
8/2/96	S14C42	1452	Cylinder 4	142.9	41.0	1.5	33.6	56.1	61.3	43.1
8/2/96	S14C42	1452	Cylinder 5	275.4	43.6	1.4	5.7	47.0	68.3	48.3
8/2/96	S14C42	1452	Cylinder 6	557.9	545.1	1.1	4.7	5.5	131.6	93.7
8/2/96	S14C42	1452	Cylinder 7	257.4	40.7	1.3	23.2	40.8	69.8	49.4
8/2/96	S14C42	1452	Cylinder 8	121.4	46.2	1.5	35.3	79.5	62.6	43.9
8/2/96	S14C42	1452	Cylinder 9	237.3	41.4	0.8	18.2	26.0	60.2	43.5
8/2/96	S14C42	1452	Cylinder 10	567.8	567.8	1.1	4.8	23.8	125.6	90.6
8/2/96	S14C42	1452	Cylinder 11							
8/2/96	S15C42	45	North Shield	35.8	35.8	1.0	44.4	73.2	17.9	6.9

Table A - 1. Summary of 120mm M121 mortar system muzzle blast simulation instrumentation cylinder and shield pressure-time calibration values.

Date	Shot Number	Charge Weight,g	Gage Location	Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-impulse kPa*ms	Psm, kPa
8/2/96	S15C42	45	South Shield	38.3	38.3	1.2	46.8	97.0	17.9	6.6
8/2/96	S15C42	45	Cylinder 4	12.4	12.4	0.7	83.3	105.3	3.3	2.5
8/2/96	S15C42	45	Cylinder 5	12.6	10.0	0.9	94.7	127.0	5.7	3.4
8/2/96	S15C42	45	Cylinder 6	69.3	10.7	1.2	21.3	45.6	14.6	5.3
8/2/96	S15C42	45	Cylinder 7	16.7	8.6	1.5	48.4	109.6	9.7	3.4
8/2/96	S15C42	45	Cylinder 8	13.7	13.7	2.3	83.4	151.4	7.8	2.7
8/2/96	S15C42	45	Cylinder 9	10.1	10.1	1.6	109.8	329.7	9.2	3.3
8/2/96	S15C42	45	Cylinder 10	63.1	9.9	1.1	21.7	33.5	15.1	5.4
8/2/96	S15C42	45	Cylinder 11	12.7	9.1	1.5	92.5	129.7	9.8	3.6
8/2/96	S16C42	91	North Shield	66.2	53.0	0.9	31.7	162.6	27.0	10.4
8/2/96	S16C42	91	South Shield	63.4	63.4	0.0	9.0	21.8	0.7	10.4
8/2/96	S16C42	91	Cylinder 4	18.2	18.2	0.0	9.6	27.9	0.4	4.3
8/2/96	S16C42	91	Cylinder 5	24.5	24.5	0.0	1.4	12.1	1.2	5.4
8/2/96	S16C42	91	Cylinder 6	88.2	88.2	0.0	6.1	16.6	0.9	8.1
8/2/96	S16C42	91	Cylinder 7	27.9	27.6	1.6	50.7	86.1	15.3	5.4
8/2/96	S16C42	91	Cylinder 8	17.4	15.5	0.7	71.1	99.9	5.0	4.2
8/2/96	S16C42	91	Cylinder 9	19.7	19.7	0.2	16.4	32.1	0.4	5.1
8/2/96	S16C42	91	Cylinder 10	92.7	17.3	1.3	28.3	41.3	22.8	8.3
8/2/96	S16C42	91	Cylinder 11	21.1	13.7	2.0	68.8	119.5	14.8	5.2
8/2/96	S17C42	181	North Shield	105.5	105.5	1.2	22.0	47.0	38.4	14.6
8/2/96	S17C42	181	South Shield	108.0	108.0	1.4	27.6	49.0	38.9	14.5
8/2/96	S17C42	181	Cylinder 4	24.3	4.6	1.6	82.1	130.3	18.9	6.7
8/2/96	S17C42	181	Cylinder 5	39.8	23.0	1.4	59.5	83.6	22.1	8.0
8/2/96	S17C42	181	Cylinder 6	121.3	15.5	1.1	21.8	35.0	32.6	12.0
8/2/96	S17C42	181	Cylinder 7	43.7	18.8	1.5	42.3	79.8	22.3	8.1
8/2/96	S17C42	181	Cylinder 8	22.1	4.8	1.9	84.1	126.8	18.9	6.7
8/2/96	S17C42	181	Cylinder 9	39.7	17.1	2.0	46.5	106.7	21.5	7.7
8/2/96	S17C42	181	Cylinder 10	113.7	16.1	1.2	26.9	35.4	32.6	12.1
8/2/96	S17C42	181	Cylinder 11	38.3	20.2	0.9	55.7	78.8	12.4	8.1
8/2/96	S18C42	363	North Shield	138.8	32.8	1.2	27.5	98.8	50.5	19.8
8/2/96	S18C42	363	South Shield	148.4	43.1	2.0	41.0	112.9	63.0	22.3
8/2/96	S18C42	363	Cylinder 4	34.9	28.3	1.7	72.1	115.3	28.0	9.7
8/2/96	S18C42	363	Cylinder 5	61.0	61.0	0.0	12.8	23.9	0.9	11.4
8/2/96	S18C42	363	Cylinder 6	169.0	55.3	1.4	26.9	41.8	48.2	17.5
8/2/96	S18C42	363	Cylinder 7	59.1	18.1	1.6	54.5	92.7	31.6	11.3
8/2/96	S18C42	363	Cylinder 8	37.8	11.4	1.7	79.6	131.5	27.6	9.6
8/2/96	S18C42	363	Cylinder 9	62.6	20.1	1.6	60.7	120.2	28.0	10.7
8/2/96	S18C42	363	Cylinder 10	140.9	20.4	1.5	27.7	54.3	44.6	16.2
8/2/96	S18C42	363	Cylinder 11	78.4	29.3	1.1	44.9	67.0	29.2	10.8
8/5/96	S19C42	726	North Shield	189.3	41.6	1.8	36.7	283.2	80.8	28.7
8/5/96	S19C42	726	South Shield	216.0	216.0	1.7	22.8	166.0	87.6	31.1
8/5/96	S19C42	726	Cylinder 4	72.3	12.2	1.6	44.8	77.7	42.5	15.2
8/5/96	S19C42	726	Cylinder 5	158.2	24.2	1.3	20.8	259.4	45.5	16.9
8/5/96	S19C42	726	Cylinder 6	289.8	289.8	1.0	7.0	20.6	76.5	28.0
8/5/96	S19C42	726	Cylinder 7	106.3	29.1	1.2	35.9	55.9	43.4	16.1
8/5/96	S19C42	726	Cylinder 8	76.2	13.8	1.6	48.0	92.4	42.2	15.0
8/5/96	S19C42	726	Cylinder 9	128.9	21.7	1.3	26.6	50.5	40.7	16.0

Table A - 1. Summary of 120mm M121 mortar system muzzle blast simulation instrumentation cylinder and shield pressure-time calibration values.

Date	Shot Number	Charge Weight,g	Gage Location	Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-impulse kPa*ms	Psm, kPa
8/5/96	S19C42	726	Cylinder 10	247.4	247.4	0.9	17.6	21.1	71.3	25.6
8/5/96	S19C42	726	Cylinder 11	153.2	33.1	1.1	27.9	45.2	45.2	17.2
8/5/96	S20C42	1089	North Shield	295.9	45.8	1.9	7.4	117.6	115.4	40.9
8/5/96	S20C42	1089	South Shield	278.2	278.2	1.8	205.7	383.4	114.7	41.9
8/5/96	S20C42	1089	Cylinder 4	100.2	33.2	1.7	35.7	300.3	55.4	20.1
8/5/96	S20C42	1089	Cylinder 5	204.2	33.4	1.1	41.2	342.2	58.0	21.7
8/5/96	S20C42	1089	Cylinder 6	371.7	371.7	1.9	12.2	19.4	106.4	37.7
8/5/96	S20C42	1089	Cylinder 7	168.2	33.4	1.5	33.4	156.0	56.6	21.0
8/5/96	S20C42	1089	Cylinder 8	98.7	17.6	1.6	53.8	82.2	54.9	19.7
8/5/96	S20C42	1089	Cylinder 9	177.6	30.4	1.0	18.9	39.0	50.3	20.7
8/5/96	S20C42	1089	Cylinder 10	340.0	334.4	1.1	7.0	18.7	96.5	35.0
8/5/96	S20C42	1089	Cylinder 11	208.2	34.2	1.5	18.4	34.6	57.1	21.2
8/5/96	S21C42	1452	North Shield	351.4	351.4	0.9	92.5	325.0	145.7	52.1
8/5/96	S21C42	1452	South Shield	358.5	358.5	1.6	280.5	474.9	141.9	73.4
8/5/96	S21C42	1452	Cylinder 4	117.9	26.2	1.8	40.9	66.0	64.1	24.0
8/5/96	S21C42	1452	Cylinder 5	298.2	298.2	2.1	19.9	38.5	72.6	25.7
8/5/96	S21C42	1452	Cylinder 6	492.9	487.5	1.7	4.8	27.7	132.4	46.9
8/5/96	S21C42	1452	Cylinder 7	270.2	40.8	2.1	25.2	417.7	67.1	25.7
8/5/96	S21C42	1452	Cylinder 8	113.4	18.0	1.5	37.2	90.3	61.7	23.7
8/5/96	S21C42	1452	Cylinder 9	227.2	38.3	0.9	19.8	188.8	61.4	24.0
8/5/96	S21C42	1452	Cylinder 10	519.8	519.8	0.9	4.9	187.0	126.7	45.7
8/5/96	S21C42	1452	Cylinder 11	258.2	258.2	2.1	19.3	35.6	72.8	25.8

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table A-2. 120 mm M121 mortar system muzzle blast simulation calibration shots in terms of individual peak pressure (Pmax) values for the individual shield gauges and both the individual and average values for the instrumentation cylinders as a function of shot number and charge weight.

Date	Shot No.	Charge Weight, g	North Shield Pmax,kPa	South Shield Pmax,kPa	Cylinder Position	Gauge (4 or 8) Pmax,kPa	Gauge (7 or 9) Pmax,kPa	Gauge (5 or 11) Pmax,kPa	Gauge (6 or 10) Pmax,kPa	Gauge (4 to 11) Average
1-Aug	S01C42	45	31.9	35.1	South	13.5	15.4	11.1	75.4	28.9
		45			North	12.9	11.0	15.4	60.6	25.0
	S02C42	91	66.9	73.4	South	12.2	27.8	23.5	101.0	41.1
		91			North	18.7	17.7	25.5	97.7	39.9
	S03C42	181	111.4	103.8	South	29.5	48.3	37.6	94.8	52.6
		181			North	26.9	35.4	50.3	116.2	57.2
	S04C42	363	125.4	142.6	South	36.7	70.3	80.3	143.5	82.7
		363			North	37.1	59.6	94.8	160.8	88.1
	S05C42	726	199.5	189.9	South	71.2	127.8	143.6	251.2	148.5
		726			North	83.4	118.4	150.1	282.5	158.6
	S06C42	1089	320.9	286.0	South	99.1	174.8	209.5	423.3	226.7
		1089			North	86.4	193.9	232.5	401.0	228.5
	S07C42	1452	442.7	391.9	South	97.0	297.6	293.6	505.7	298.5
		1452			North	144.3	221.9	260.5	516.8	285.9
	SO8C42	45	39.7	36.7	South	15.7		35.2	68.6	
		45			North	12.8	15.0	12.7	67.0	26.9
	S09C42	91	65.1	73.3	South	18.0		24.4	111.6	
		91			North	16.2	18.0	32.7	90.9	39.5
2-Aug	S10C42	181	96.5	102.7	South	22.6	45.4	37.8	120.4	56.6
		181			North	25.2	32.6	46.6	123.1	56.9
	S11C42	363	149.9	159.1	South	37.1	66.2	69.2	147.5	80.0
		363			North	38.0	68.8	72.9	153.9	83.4
	S12C42	726	221.8	217.8	South	92.4	112.7	146.2	255.2	151.6
		726			North	90.4	117.0	151.9	287.3	161.7
	S13C42	1089	289.5	286.7	South	86.0	189.7	189.3	386.1	212.8
		1089			North	118.5	187.4	221.1	366.5	223.4
	S14C42	1452	447.8	416.6	South	142.9	257.4	275.0	557.9	308.3
		1452			North	121.4	237.3		567.8	
	S15C42	45	35.8	38.3	South	12.4	16.7	12.6	69.3	27.8
		45			North	13.7	10.1	12.7	63.1	24.9
	S16C42	91	66.2	63.4	South	18.2	27.9	24.5	88.2	39.7
		91			North	17.4	19.7	21.1	92.7	37.7
	S17C42	181	105.5	108.0	South	24.3	43.7	39.8	121.3	57.3
		181			North	22.1	39.7	38.3	113.7	53.5
	S18C42	363	138.8	148.4	South	34.9	59.1	61.0	169.0	81.0
		363			North	37.8	62.6	78.4	140.9	79.9
5-Aug	S19C42	726	189.3	216.0	South	72.3	106.3	158.2	289.8	156.7
		726			North	76.2	128.9	153.2	247.4	151.4
	S20C42	1089	295.9	278.2	South	100.2	168.2	204.2	371.7	211.1
		1089			North	98.7	177.6	208.2	340.0	206.1
	S21C42	1452	351.4	358.5	South	117.9	270.2	298.2	492.9	294.8
		1452			North	113.4	227.2	258.2	519.8	279.7

Appendix B

Pathology

Table B-1. 120mm M121 mortar system muzzle blast simulation gross pathology results listed as a function of charge weight and number of exposures.

Date	Pmax, kPa	Config.	Animal Number	Charge wt., g	LW/BW, %	Lungs	64*	Pharynx/ Larynx	60*	Trachea	55*	GI Tract	48*	Solid Abd Organs	44*	ASII 21**	Note	Urogenital Tract	
Six Exposure Series																			
8/9/96	289	RSO	648	1452	0.96	Slight	14	Slight	7	Extensive	40	Negative	0	Negative	0	1.06	(a)	Negative	
8/9/96		LSO	649		0.95	Negative	0	Trace	4	Extensive	44	Slight	7	Negative	0	1.01		Negative	
6/3/97		RSO	804		0.98	Slight	10	Slight	8	Extensive	55	Moderate	20	Negative	0	1.71		Negative	
6/3/97		LSO	805		1.01	Slight	21	Slight	8	Extensive	45	Slight	12	Negative	0	1.53	(h)	Negative	
6/5/97		RSO	806		1.27	Slight	18	Slight	7	Extensive	33	Slight	16	Negative	0	1.33	(hh)	Negative	
6/5/97		LSO	807		0.99	Trace	3	Slight	5	Extensive	33	Negative	0	Negative	0	0.73	(hh)	Bladder	Pet
6/10/97		RSO	808		1.11	Slight	12	Moderate	20	Extensive	40	Negative	0	Negative	0	1.25		Negative	
6/10/97		LSO	809		1.18	Slight	10	Slight	5	Slight	7	Negative	0	Negative	0	0.37		Negative	
6/12/97		RSO	810		1.00	Negative	0	Slight	7	Slight	16	Slight	8	Negative	0	0.57		Negative	
6/12/97		LSO	811		1.26	Slight	12	Slight	5	Extensive	40	Negative	0	Negative	0	1.00		Negative	
6/17/97		RSO	812		0.90	Slight	10	Moderate	18	Extensive	44	Slight	18	Negative	0	1.26		Negative	
Mean					1.06		10		9		36		7		0	1.07			
Range			n = 11		0.90-1.27		(0-21)		(4-20)		(7-44)		(0-20)		0	0.37-1.71			
SD					0.13		7		5		14		8		0	0.40			
8/13/96	205	RSO	650	997	1.09	Negative	0	Slight	6	Extensive	36	Moderate	20	Negative	0	1.17		Negative	
		LSO	651		0.91	Negative	0	Negative	0	Moderate	28	Trace	4	Negative	0	0.59		Negative	
Mean					1.00		0		3		32		12		0	0.88			
Range			n = 2		0.91-1.09		0		(0-6)		(28-36)		(4-20)		0	0.59-1.17			
SD					0.13		0		4		6		11		0	0.41			
8/15/96	145	RSO	652	675	1.03	Negative	0	Trace	4	Slight	6	Negative	0	Negative	0	0.18		Negative	
		LSO	653		0.98	Negative	0	Negative	0	Slight	10	Trace	4	Negative	0	0.27		Negative	
Mean					1.01		0		2		8		2		0	0.23			
Range			n = 2		0.98-1.03		0		(0-4)		(6-10)		(0-4)		0	0.18-0.27			
SD					0.04		0		3		3		3		0	0.06			
8/21/96	102	RSO	654	447	1.13	Negative	0	Negative	0	Slight	5	Negative	0	Negative	0	0.09	(b)	Negative	
		LSO	655		0.90	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b)	Negative	
Mean					1.02		0		0		3		0		0	0.05			
Range			n = 2		0.90-1.13		0		0		(0-5)		0		0	0.00-0.09			
SD					0.16		0		0		4		0		0	0.06			
8/23/96	72	RSO	656	285	1.18	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(c)	Negative	
		LSO	657		0.98	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(d)	Negative	
8/29/96		RSO	660		0.91	Negative	0	Negative	0	Trace	4	Negative	0	Negative	0	0.07	(e)	Negative	
		LSO	661		0.89	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet.
9/3*96		RSO	662		1.05	Negative	0	Trace	4	Negative	0	Negative	0	Negative	0	0.07	(f)	Negative	
		LSO	663		1.14	Negative	0	Negative	0	Slight	5	Negative	0	Negative	0	0.09		Negative	
9/5/96		RSO	664		0.87	Negative	0	Negative	0	Slight	5	Negative	0	Negative	0	0.09	(e)	Negative	
		LSO	665		1.04	Negative	0	Negative	0	Slight	5	Slight	6	Negative	0	0.22	(g)	Negative	
9/10/96		RSO	666		1.00	Negative	0	Negative	0	Trace	4	Negative	0	Negative	0	0.07		Negative	
		LSO	667		0.87	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
Mean					0.99		0		0		2		1		0	0.06			
Range			n = 10		0.87-1.18		0		(0-4)		(0-5)		(0-6)		0	0.00-0.22			
SD					0.11		0		1		2		2		0	0.07			

Date	Pmax, kPa	Config.	Animal Number	Charge wt., g	LW/BW, %	Lungs	64*	Pharynx/ Larynx	60*	Trachea	55*	GI Tract	48*	Solid Abd Organs	44*	ASII 21**	Note	Urogenital Tract	
9/12/96	51	RSO	668	171	0.96	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
9/12/96		LSO	669		0.95	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Bladder	Pet
9/17/96		RSO	670		0.93	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet,Ede
9/17/96		LSO	671		0.89	Negative	0	Negative	0	Trace	4	Negative	0	Negative	0	0.07		Negative	
9/19/96		RSO	672		0.90	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet
9/19/96		LSO	673		1.01	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
9/24/96		RSO	674		1.01	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(i)	Bladder	Pet
9/24/96		LSO	675		1.02	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
9/26/96		RSO	676		1.02	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
9/26/96		LSO	677		1.13	Negative	0	Negative	0	Tr-Slt	5	Negative	0	Negative	0	0.09	(h,,j)	Bladder	Pet
Mean					0.98		0		0		1		0		0	0.02			
Range			n = 10		0.89-1.13		0		0		0		0		0	0.00-0.09			
SD					0.07		0		0		2		0		0	0.03			
11/5/96	43	RSO	698	127	0.98	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
11/5/96		LSO	699		0.88	Negative	0	Trace	3	Negative	0	Negative	0	Negative	0	0.05		Negative	
11/7/96		RSO	700		0.99	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
11/7/96		LSO	701		0.97	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(w)	Negative	
11/12/96		RSO	702		0.99	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(u)	Negative	
11/12/96		LSO	703		1.19	Negative	0	Trace*	3	Negative	0	Negative	0	Negative*	0	0.05	(x)	Negative	
11/14/96		RSO	704		0.95	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
11/14/96		LSO	705		0.88	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(y)	Bladder	Edema
11/19/96		RSO	706		0.96	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(z)	Negative	
11/19/96		LSO	707		1.07	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(z)	Negative	
12/10/96		RSO	716		0.97	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
12/10/96		LSO	717		1.08	Negative	0	Negative	0	Tr-Slt	5	Negative	0	Negative	0	0.09		Negative	
Mean					0.99		0		1		0		0		0	0.02			
Range			n = 12		0.88-1.19		0		(0-3)		(0-5)		0		0	0.00-0.09			
SD					0.09		0		1		1		0		0	0.03			
12/12/96	36	RSO	718	90	1.07	Negative	0	Trace	3	Negative	0	Negative	0	Negative	0	0.05	(ee)	Negative	
12/12/96		LSO	719		0.97	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
12/17/96		RSO	720		1.12	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
12/17/96		LSO	721		1.06	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(ff)	Negative	
12/19/96		RSO	722		0.95	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
12/19/96		LSO	723		0.93	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(ff)	Negative	
1/7/97		RSO	724		0.94	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
1/7/97		LSO	725		0.96	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(gg)	Negative	
1/9/97		RSO	726		1.05	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b)	Negative	
1/9/97		LSO	727		1.03	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b)	Bladder	Edema
5/8/97		RSO	790		0.92	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
5/8/97		LSO	791		1.07	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Edema
5/13/97		RSO	792		1.05	Negative	0	Trace	3	Negative	0	Negative	0	Negative	0	0.05		Negative	
5/13/97		LSO	793		0.86	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
5/15/97		RSO	794		0.89	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
5/15/97		LSO	795		1.03	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	

Date	Pmax, kPa	Config.	Animal Number	Charge wt., g	LW/BW, %	Lungs	34*	Pharynx/ Larynx	60*	Trachea	55*	GI Tract	48*	Solid Abd Organs	44*	ASII 21**	Note	Urogenital Tract	
5/20/97		RSO	796		1.17	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b,u)	Negative	
5/20/97		LSO	797		1.01	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
5/22/97		RSO	798		0.97	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
5/22/97		LSO	799		1.16	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
5/27/97		RSO	800		0.96	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
5/27/97		LSO	801		1.19	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
5/29/97		RSO	802		0.97	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
5/29/97		LSO	803		1.10	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
Mean					1.02		0		0		0		0		0	0.00			
Range			n = 24		0.86-1.19		0		(0-3)		0		0		0	0.00-0.05			
SD					0.09		0		1		0		0		0	0.01			
50 Exposure Series																			
10/3/96	72	RSO	680	285	0.94	Negative	0	Negative	0	Extensive	44	Negative	0	Negative	0	0.80	(k,h	Negative	
10/3/96		LSO	681		1.10	Negative*	0	Negative	0	Extensive	40	Negative	0	Negative	0	0.73	(l,m)	Negative	
4/3/97		RSO	770		1.20	Negative	0	Negative	0	Extensive	40	Trace	4	Negative	0	0.81	(h)	Negative	
4/3/97		LSO	771		1.14	Negative	0	Trace	3	Slight	8	Negative	0	Negative	0	0.20	(kk)	Bladder	Pet
4/8/97		RSO	772		1.03	Negative	0	Trace	3	Extensive	44	Negative	0	Negative	0	0.85		Negative	
4/8/97		LSO	773		0.89	Negative	0	Trace	3	Extensive	32	Slight	6	Negative	0	0.76	(h)	Negative	
4/10/97		RSO	774		0.86	Negative	0	Negative	0	Slight	12	Negative	0	Negative	0	0.22	(kk)	Bladder	Pet
4/10/97		LSO	775		0.94	Negative	0	Negative	0	Extensive	36	Negative	0	Negative	0	0.65	(h)	Negative	
4/15/97		RSO	776		1.07	Negative	0	Negative	0	Slight	18	Negative	0	Negative	0	0.33		Negative	
4/15/97		LSO	777		0.95	Negative	0	Negative	0	Extensive	32	Negative	0	Negative	0	0.58	(kk)	Bladder	Edema
Mean					1.01		0		1		31		1		0	0.59			
Range			n = 10		0.86-1.20		0		(0-3)		(4-44)		(0-6)		0	0.20-0.85			
SD					0.11		0		1		13		2		0	0.25			
10/8/96	51	RSO	682	171	1.01	Negative	0	Trace	4	Tr-Slt	5	Trace	3	Negative	0	0.22	(n,o)	Negative	
10/8/96		LSO	683		0.94	Negative	0	Negative	0	Slight	6	Negative	0	Negative	0	0.11		Negative	
10/10/96		RSO	684		0.83	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(p)	Negative	
10/10/96		LSO	685		1.03	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Bladder	Pet
10/15/96		RSO	686		0.87	Negative	0	Negative	0	Slight	6	Negative	0	Negative	0	0.11	(h)	Negative	
10/15/96		LSO	687		0.95	Negative	0	Negative	0	Slight	6	Negative	0	Negative	0	0.11	(h)	Negative	
4/17/97		RSO	778		1.01	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(u)	Negative	
4/17/97		LSO	779		0.91	Negative	0	Negative	0	Slight	6	Negative	0	Negative	0	0.11	(b)	Negative	
4/22/97		RSO	780		0.93	Negative	0	Negative	0	Slight	10	Negative	0	Negative	0	0.18	(kk)	Negative	
4/22/97		LSO	781		0.92	Negative	0	Negative	0	Extensive	32	Negative	0	Negative	0	0.58		Negative	
Mean					0.94		0		0		7		0		0	0.14			
Range			n = 10		0.83-1.03		0		(0-4)		(0-32)		(0-3)		0	0.00-0.58			
SD					0.06		0		1		9		1		0	0.17			
11/21/96	43	RSO	708	127	0.94	Negative	0	Negative	0	Slight	6	Negative	0	Negative	0	0.11		Bladder	Pet
11/21/96		LSO	709		1.01	Negative	0	Trace	3	Negative	0	Negative	0	Negative	0	0.05	(aa)	Negative	
12/3/96		RSO	712		0.96	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
12/3/96		LSO	713		0.93	Negative	0	Negative	0	Slight	12	Negative	0	Negative	0	0.22		Negative	
4/24/97		RSO	782		0.89	Negative	0	Negative	0	Slight	6	Negative	0	Negative	0	0.11	(h)	Negative	
4/24/97		LSO	783		1.11	Negative	0	Negative	0	Tr-Slt	5	Negative	0	Negative	0	0.09		Bladder	Edema

Date	Pmax, kPa	Config.	Animal Number	Charge wt., g	LW/BW, %	Lungs	64*	Pharynx/ Larynx	60*	Trachea	55*	GI Tract	48*	Solid Abd Organs	44*	ASII 21**	Urogenital Note	Urogenital Tract	
4/29/97		RSO	784		0.96	Negative	0	Negative	0	Slight	6	Negative	0	Negative	0	0.11	(ll)	Negative	
4/29/97		LSO	785		1.14	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(r)	Negative	
5/1/97		RSO	786		0.95	Negative	0	Negative	0	Tr-Slt	5	Slight	6	Negative	0	0.22	(mm)	Negative	
5/1/97		LSO	787		0.82	Negative	0	Negative	0	Tr-Slt	5	Negative	0	Negative	0	0.09		Negative	
Mean					0.97		0		0		5		1		0	0.10			
Range			n = 10		0.82-1.14		0		(0-3)		(0-12)		(0-6)		0	0.00-0.22			
SD					0.10		0		1		4		2		0	0.08			
10/17/96	36	RSO	688	90	1.12	Negative	0	Trace	3	Negative	0	Negative	0	Negative	0	0.05	(q)	Negative	
10/17/96		LSO	689		0.95	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
10/22/96		RSO	690		0.91	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
10/22/96		LSO	691		1.05	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
10/24/96		RSO	692		1.04	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
10/24/96		LSO	693		1.26	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
10/29/96		RSO	694		1.01	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
10/29/96		LSO	695		1.03	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Bladder	Pet
10/31/96		RSO	696		0.89	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(r)	Negative	
10/31/96		LSO	697		1.06	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
12/5/96		RSO	714		1.02	Negative	0	Negative	0	Tr-Slt	5	Negative	0	Negative	0	0.09	(cc)	Bladder	Ed-Pet
12/5/96		LSO	715		1.06	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(dd)	Negative	
Mean					1.03		0		0		0		0		0	0.01			
Range			n = 12		0.89-1.26		0		0		0		0		0	0.00-0.09			
SD					0.10		0		1		1		0		0	0.03			
1/14/97	30	RSO	728	60	1.05	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
1/14/97		LSO	729		0.97	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b)	Negative	
1/16/97		RSO	730		1.04	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b)	Negative	
1/16/97		LSO	731		1.05	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet
1/21/97		RSO	732		1.22	Negative*	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b,hh	Negative	
1/21/97		LSO	733		0.89	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
1/28/97		RSO	734		0.92	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b)	Negative	
1/28/94		LSO	735		0.96	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b)	Negative	
1/30/94		RSO	736		1.07	Negative	0	Trace	3	Negative	0	Negative	0	Negative	0	0.05		Negative	
1/30/94		LSO	737		1.07	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
2/6/97		RSO	740		1.14	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet
2/6/97		LSO	741		0.91	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b,u)	Negative	
2/11/97		RSO	742		1.16	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
2/11/97		LSO	743		0.99	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
2/13/97		RSO	744		1.00	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
2/13/97		LSO	745		1.07	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
2/18/97		RSO	746		1.13	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
2/18/97		LSO	747		0.93	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b,u)	Negative	
2/20/97		RSO	748		1.30	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h,u)	Negative	
2/20/97		LSO	749		0.87	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
2/27/97		RSO	750		1.18	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(u)	Negative	
2/27/97		LSO	751		1.08	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	

Date	Pmax, kPa	Config.	Animal Number	Charge wt., g	LW/BW, %	Lungs	64*	Pharynx/ Larynx	60*	Trachea	55*	GI Tract	48*	Solid Abd Organs	44*	ASII 21**	Note	Urogenital Tract	
3/4/97		RSO	752		0.88	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
3/4/97		LSO	753		0.93	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
3/6/97		RSO	754		0.98	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
3/6/97		LSO	755		1.24	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(ii)	Negative	
3/11/97		RSO	756		1.00	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
3/11/97		LSO	757		0.92	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
3/13/97		RSO	758		0.91	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(jj)	Negative	
3/13/97		LSO	759		0.99	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(u)	Negative	
3/18/97		RSO	760		0.97	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
3/18/97		LSO	761		0.99	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Bladder	Pet
3/20/97		RSO	762		0.85	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet
3/20/97		LSO	763		0.91	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(u)	Bladder	Pet
3/25/97		RSO	764		0.95	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(u)	Negative	
3/25/97		LSO	765		0.92	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Negative	
3/27/97		RSO	766		1.00	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h,u)	Negative	
3/27/97		LSO	767		0.94	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(h)	Bladder	Pet
4/1/97		RSO	768		0.88	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
4/1/97		LSO	769		1.04	Negative	0	Trace	3	Negative	0	Negative	0	Negative	0	0.05		Bladder	Edema
Mean					1.01		0		0		0		0		0	0.00			
Range			n = 40		0.85-1.30		0		(0-3)		0		0		0	0.00-0.05			
SD					0.11		0		1		0		0		0	0.01			
				Controls															
8/27/96	Control	RSO	658	Control	0.96	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(s)	Negative	
8/27/96	Control	LSO	659		1.01	Negative	0	Negative	0	Negative	0	Negative	0	Trace	4	0.00	(t)	Negative	
10/1/96	Control	RSO	678		0.90	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(u,h)	Bladder	Edema
10/1/96	Control	LSO	679		1.07	Negative	0	Negative	0	Tr-Slt	5	Negative	0	Negative	0	0.09	(v)	Negative	
11/26/96	Control	RSO	710		1.05	Negative	0	Trace	4	Negative	0	Negative	0	Negative	0	0.07	(bb)	Negative	
11/26/96	Control	LSO	711		1.03	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet
2/4/97	Control	RSO	738		0.84	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(u)	Negative	
2/4/97	Control	LSO	739		1.03	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00	(b,u)	Negative	
5/6/97	Control	RSO	788		0.78	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
5/6/97	Control	LSO	789		1.01	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Negative	
6/19/97	Control	RSO	813		1.16	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet
6/19/97	Control	LSO	814		1.05	Negative	0	Negative	0	Negative	0	Negative	0	Negative	0	0.00		Bladder	Pet
Mean					0.99		0		0		0		0		0	0.01			
Range			n = 12		0.85-1.30		0		(0-4)		(0-5)		0		(0-4)	0.00-0.09			
SD					0.11		0		1		1		0		1	0.03			

Notes

* Maximum possible injury score

** Adjusted Severity of Injury Index (ASII) maximum possible score for a survivor is 21.

(a) It is possible that the lung hemorrhage was induced by aspiration of blood from the tracheal laceration but no bloody froth was found in the bronchi.

(b) Scattered petechiation on mucosa of abomasum induced by Hemonchus contortus and not blast related.

(c) Adhesions on rt. apical and cardiac lobes.

(d) Agonal epicardial and endocardial hemorrhage on ventricles. Scattered mucosal congestion between fecal pellets in the spiralis. Trace pneumonia on rt. diaphragmatic

(n) Small area of ecchymosis (3.0x0.3cm) in area of clamp possibly due to iatrogenic factors. Not visually inspected prior to clamping.
(o) Small spot of ecchymosis on abomasum atypical for a blast lesion.
(p) A 0.5 x 0.3 cm spot of mucosal congestion or tracheitis, not counted as a blast lesion.
(q) Slight tracheitis adjacent to clamp area could also be from iatrogenic factors. Small area of parenchymal congestion along vertebral gutter of left cardiac lobe.
(r) Tracheitis and scattered patchy enteritis.
(s) Slight tracheitis adjacent to clamp area, could be scored as a grade 5 lesion if it were a test animal.
(t) Agonal epicardial and endocardial hemorrhage on ventricles. Trace tracheitis anterior portion, could be scored as a grade 4 lesion if it were a test animal. Four scattered contusions on diaphragm and one small hematoma on liver. The diaphragm and liver lesions are not common in blast exposed animals until lethal dose levels are reached and will not be included in the ASII.
(u) Mild tracheitis.
(v) Scattered retractive atelectasis both lungs and scattered ecchymosis superimposed on a tracheitis mid-portion of trachea.
(w) Mild tracheitis and spot of parenchymal congestion leftdiaphragmatic lobe along vertebral gutter.
(x) One petechia superimposed on a mild pharynitis. Animal also had a mild tracheitis, lung adhesions and caseous lymphadinitis cysts in parenchymal tissue. Also an impact trauma contusion on rumen. Primarily subserosal with pinhead perforation in mucosa. Not a blast lesion.
(y) Scattered retractive atelectasis. Aspirated gastric contents into right bronchus.
(z) Mild pleuritis
(aa) One petechia in pharynx and patchy enteritis of large colon.
(bb) Six petechia in pharynx and patchy enteritis of large colon and small entestine.
(cc) Pleuritis both diaphragmatic lobes.
(dd) Four faint streaks of mucosal petechiation in rectum near anus. Not blast related.
(ee) Pleuritis and pneumonic areas both diaphragmatic lobes. One petechia in pharynx.
(ff) Mild tracheitis posterior portion.
(gg) Adhesions, pleural thickening, and retractive atelectasis both diaphragmatic lobes. Mucosal petechiation of abomasum from Hemonchus contortus infestation.
(hh) Diseased lungs
(ii) Pleuritis and pneumonitis both diaphragmatic lobes.
(jj) Retractive atelectasis left diaphragmatic.
(kk) Patchy enteritis of caecum and large colon plus mucosal congestion between fecal pellets in spiralis and/or terminalis.
(ll) Patchy enteritis of caecum, large colon and small intestine.
(mm) Etiology of gastroenteric lesions uncertain. Looks more like blunt or impact trauma than blast truama but no body wall lesions were found.

Appendix C

North and South Shield Monitor Gauge Test Data

Table C-1. Test 1 north and south shield pressure-time values for sheep numbers 648 and 649.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
8/8/96	1	1452	North Shield	377.3	377.3	1.0	7.2	20.8	148.2	53.3
	1		South Shield	367.6	367.6	1.0	7.1	20.0	131.6	47.1
	2		North Shield	335.7	335.7	1.1	6.9	18.8	139.9	50.0
	2		South Shield	370.2	370.2	1.0	6.7	20.9	128.0	46.4
	3		North Shield	417.7	417.7	1.0	5.7	18.2	145.4	52.1
	3		South Shield	327.1	327.1	1.1	14.6	39.4	128.8	45.9
	4		North Shield	383.3	383.3	0.9	7.2	21.5	142.5	51.2
	4		South Shield	375.1	375.1	1.1	7.3	18.2	133.1	47.9
	5		North Shield	365.8	365.8	1.0	7.6	18.2	139.6	50.0
	5		South Shield	404.3	404.3	1.1	5.6	21.9	135.4	48.5
	6		North Shield	365.8	365.8	1.0	6.3	22.8	133.0	47.6
	6		South Shield	336.4	336.4	1.5	7.3	38.4	136.5	48.6
Mean				368.9	368.9	1.1	7.5	23.3	136.8	49.1
SD				26.8	26.8	0.1	2.3	7.5	6.4	2.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-2. Test 2 north and south shield pressure-time values for sheep numbers 649 and 650.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
8/13/96	1	997g	North Shield	248.9	44.0	1.4	18.7	41.2	100.0	35.9
	1		South Shield	235.1	235.1	1.1	17.1	39.3	99.6	34.9
	2		North Shield	281.4	48.8	1.2	14.8	21.3	103.9	37.8
	2		South Shield	242.6	242.6	1.1	14.9	36.9	99.4	34.9
	3		North Shield	259.1	44.5	1.2	14.8	37.1	103.7	37.4
	3		South Shield	228.2	42.1	1.1	15.0	35.4	101.3	35.5
	4		North Shield	269.4	269.4	1.6	6.9	37.3	107.6	38.3
	4		South Shield	232.0	232.0	1.1	14.9	39.8	101.0	35.5
	5		North Shield	253.8	42.9	1.9	14.9	41.5	105.3	37.2
	5		South Shield	256.4	256.4	1.1	15.0	43.3	99.0	34.9
	6		North Shield	283.2	47.0	1.5	6.9	34.7	104.7	37.5
	6		South Shield	236.2	36.2	1.1	7.3	21.8	99.8	35.2
Mean				252.2	128.4	1.3	13.4	35.8	102.1	36.2
SD				18.6	105.2	0.3	4.0	7.1	2.8	1.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-3. Test 3 north and south shield pressure-time values for sheep numbers 652 and 653.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
8/15/96	1	675g	North Shield	178.4	40.4	1.4	29.2	51.6	82.9	29.8
	1		South Shield	188.4	27.7	1.3	22.8	39.1	79.4	28.0
	2		North Shield	180.1	41.5	1.4	29.3	40.3	82.5	29.8
	2		South Shield	184.0	184.0	1.4	23.0	40.4	78.7	27.7
	3		North Shield	191.0	48.8	1.4	30.0	40.5	83.6	30.0
	3		South Shield	181.9	181.9	1.4	29.2	35.6	78.8	27.8
	4		North Shield	199.9	45.0	1.7	23.4	55.0	86.7	31.0
	4		South Shield	180.9	52.7	1.2	26.9	55.0	77.1	27.3
	5		North Shield	171.2	37.4	1.4	29.2	63.8	82.1	29.5
	5		South Shield	182.4	182.4	1.3	28.6	37.5	78.1	27.5
Mean				183.8	84.2	1.4	27.2	45.9	81.0	28.8
SD				7.8	68.4	0.1	2.9	9.6	3.0	1.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-4. Test 4 north and south shield pressure-time values for sheep numbers 654 and 655.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
8/21/96	1	447	North Shield	143.3	22.2	1.1	33.1		58.6	22.9
	1		South Shield	145.8	145.8	1.2	29.5	52.7	52.1	22.3
	2		North Shield	136.8	28.9	1.2	44.1	44.2	64.3	24.3
	2		South Shield	145.3	32.0	1.5	44.4	55.6	53.8	23.4
	3		North Shield	143.0	21.8	1.2	23.2	62.1	64.3	24.6
	3		South Shield	149.5	25.0	1.4	32.6	52.8	53.1	22.9
	4		North Shield	140.5	23.6	1.7	39.5	40.6	66.6	23.8
	4		South Shield	146.8	22.3	1.1	36.2	51.4	53.3	23.2
	5		North Shield	139.2	27.1	1.2	39.8	40.4	63.7	24.2
	5		South Shield	152.7	152.7	1.1	23.0	49.4	54.5	21.4
	6		North Shield	142.7	21.0	1.2	38.1	46.3	63.5	24.1
	6		South Shield	157.9	157.9	1.1	23.2	52.5	54.4	23.0
Mean				145.3	56.7	1.2	33.9	49.8	58.5	23.3
SD				5.9	57.7	0.2	7.8	6.6	5.5	0.9

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = Total duration
Psm = smoothed peak pressure

Table C-5. Test 5 north and south shield pressure-time values for sheep numbers 656 and 657.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
8/23/96	1	285	North Shield	111.5	16.3	0.9	43.8		44.3	17.1
	1		South Shield	114.4	114.4	1.7	33.4	50.6	43.7	17.3
	2		North Shield	110.2	110.2	0.9	38.7	54.9	46.1	18.1
	2		South Shield	110.7	110.7	1.6	36.5	49.5	43.9	19.6
	3		North Shield	118.5	118.5	0.9	37.5	61.0	47.3	18.5
	3		South Shield	120.2	120.2	1.6	28.4	62.6	45.2	20.7
	4		North Shield	114.4	16.2	0.9	37.7	64.1	44.0	18.0
	4		South Shield	120.1	120.1	1.5	36.7	37.3	45.3	19.8
	5		North Shield	115.9	17.1	0.9	22.8	49.6	44.1	17.5
	5		South Shield	118.1	118.1	1.4	28.6	46.3	44.6	20.3
	6		North Shield	120.6	22.9	0.9	37.6	41.0	45.9	18.3
	6		South Shield	119.4	119.4	1.5	36.8	63.5	44.9	21.6
Mean				116.2	83.7	1.2	34.9	52.8	44.9	18.9
SD				3.9	48.6	0.3	5.7	9.3	1.1	1.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-6. Test 6 north and south shield pressure-time values for sheep numbers 660 and 661.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
8/29/96	1	285	North Shield	107.3	19.3	1.0	46.0		41.4	15.9
	1		South Shield	133.6	133.6	1.1	22.5	35.6	46.0	18.4
	2		North Shield	108.2	16.6	0.9	22.7	61.8	41.3	16.6
	2		South Shield	139.9	139.9	1.3	28.2	36.7	46.9	18.8
	3		North Shield	110.3	19.3	1.0	23.1	59.5	43.3	17.1
	3		South Shield	133.7	133.7	1.1	28.4	36.9	46.5	19.6
	4		North Shield	111.0	16.9	0.9	27.3	83.5	43.8	17.1
	4		South Shield	133.0	133.0	1.5	33.0	45.5	44.2	19.6
	5		North Shield	109.4	109.4	0.9	23.2	67.0	43.5	17.0
	5		South Shield	132.3	132.3	1.0	22.9	37.0	42.5	19.7
	6		North Shield	109.7	20.5	1.0	37.7	72.5	42.9	17.4
	6		South Shield	132.6	132.6	1.6	35.7	41.0	45.6	17.6
Mean				121.8	83.9	1.1	29.2	52.5	44.0	17.9
SD				13.2	58.2	0.2	7.5	17.1	1.9	1.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-7. Test 7 north and south shield pressure-time values for sheep numbers 662 and 663.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
9/3/96	1	285	North Shield	119.4	119.4	0.9	27.0		43.3	16.9
	1		South Shield	123.0	123.0	1.3	29.2	48.8	43.1	18.5
	2		North Shield	118.6	118.6	0.9	27.3	77.9	44.4	17.5
	2		South Shield	118.9	118.9	1.6	27.4	66.8	45.0	18.7
	3		North Shield	117.2	20.8	0.9	32.8	42.7	44.6	17.7
	3		South Shield	130.6	130.6	1.5	36.6	44.0	45.4	17.3
	4		North Shield	113.3	113.3	0.9	22.9	40.8	46.0	17.9
	4		South Shield	121.9	121.9	1.5	36.8	45.8	44.3	18.5
	5		North Shield	132.0	20.5	0.9	22.4	45.6	45.8	18.3
	5		South Shield	118.1	118.1	1.5	36.6	37.0	45.6	18.3
	6		North Shield	114.5	114.5	0.9	31.7	65.3	46.0	17.9
	6		South Shield	124.5	124.5	1.5	36.6	57.9	43.8	17.7
Mean				121.0	103.7	1.2	30.6	52.1	44.8	17.9
SD				5.8	39.1	0.3	5.4	13.0	1.0	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-8. Test 8 north and south shield pressure-time values for sheep numbers 664 and 665.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
9/5/96	1	285	North Shield	122.4	122.4	0.9	41.2		44.8	17.4
	1		South Shield	115.4	115.4	1.3	33.3	50.1	45.1	17.6
	2		North Shield	120.1	117.7	0.9	32.9	43.7	45.1	17.7
	2		South Shield	119.6	119.6	1.4	36.7	55.4	44.6	17.4
	3		North Shield	126.4	126.4	0.9	27.5	55.3	44.3	17.7
	3		South Shield	122.5	122.5	1.4	27.5	45.3	44.9	17.0
	4		North Shield	122.9	122.9	0.9	22.3	38.2	45.1	17.9
	4		South Shield	120.7	120.7	1.4	28.8	37.0	43.4	17.7
	5		North Shield	125.4	54.9	0.8	27.9	46.0	45.5	18.5
	5		South Shield	124.5	72.9	1.4	33.0	53.8	44.2	18.1
	6		North Shield	133.8	133.8	0.9	22.8	41.3	45.1	18.2
	6		South Shield	120.2	120.2	1.4	29.0	41.4	44.2	17.3
Mean				122.8	112.5	1.1	30.2	46.1	44.7	17.7
SD				4.5	23.5	0.3	5.5	6.7	0.6	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-9. Test 9 north and south shield pressure-time values for sheep numbers 666 and 667.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
9/10/96	1	285	North Shield	111.8	17.2	1.1	34.6		44.0	18.2
	1		South Shield	121.2	121.2	1.3	28.0	40.3	48.7	18.6
	2		North Shield	113.7	17.3	1.0	23.2	42.6	43.8	17.8
	2		South Shield	124.5	124.5	1.1	22.7	42.0	45.8	17.5
	3		North Shield	118.7	19.9	1.0	23.1	52.0	44.4	18.0
	3		South Shield	123.9	123.9	1.3	22.0	42.2	47.4	18.0
	4		North Shield	113.9	16.9	1.0	41.4	89.2	45.9	18.2
	4		South Shield	121.3	121.3	1.2	28.9	37.5	46.7	17.9
	5		North Shield	113.3	19.9	0.9	36.2	61.3	42.7	18.1
	5		South Shield	133.0	133.0	1.1	27.9	36.8	48.1	18.2
	6		North Shield	111.5	111.5	1.0	37.7	52.6	46.6	18.2
	6		South Shield	119.8	119.8	1.6	36.8	36.9	47.1	18.8
Mean				118.9	78.9	1.1	30.2	48.5	45.9	18.1
SD				6.4	53.7	0.2	6.8	15.6	1.8	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-10. Test 10 north and south shield pressure-time values for sheep numbers 668 and 669.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
9/12/96	1	171	North Shield	92.8	92.8	1.3	39.0	48.4	37.2	14.0
	1		South Shield	99.2	99.2	1.0	23.7	37.9	34.0	13.1
	2		North Shield	99.5	99.5	1.3	37.8	47.1	38.2	14.4
	2		South Shield	99.1	99.1	1.0	27.4	41.5	33.7	13.1
	3		North Shield	95.9	28.4	1.2	42.0	46.2	37.8	14.2
	3		South Shield	90.3	65.3	1.0	32.1	64.6	33.6	13.2
	4		North Shield	98.9	98.3	1.2	38.2	74.6	38.4	14.6
	4		South Shield	93.4	93.4	1.0	23.9	53.8	34.6	13.5
	5		North Shield	97.1	92.3	1.1	37.6	62.7	36.8	14.0
	5		South Shield	95.2	95.2	1.1	37.8	43.5	35.0	13.7
	6		North Shield	95.9	95.9	1.3	36.8	48.1	37.3	14.1
	6		South Shield	97.6	97.6	1.0	29.4	57.1	34.0	13.1
Mean				96.2	88.1	1.1	33.8	52.1	35.9	13.8
SD				2.9	21.0	0.1	6.3	10.8	1.9	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-11. Test 11north and south shield pressure-time values for sheep numbers 670 and 671.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
9/17/96	1	171	North Shield	92.9	92.9	1.1	22.4		36.6	13.9
	1		South Shield	99.5	99.5	1.4	29.0	57.1	38.0	14.5
	2		North Shield	97.7	97.7	1.2	23.1	76.4	35.9	13.7
	2		South Shield	91.4	91.4	2.0	29.4	46.8	36.6	13.6
	3		North Shield	89.8	89.8	1.0	23.7	43.4	35.6	13.7
	3		South Shield	96.3	96.3	1.2	29.4	49.8	35.3	13.8
	4		North Shield	89.9	89.9	1.0	37.3	43.6	35.3	13.7
	4		South Shield	98.9	98.9	1.5	29.5	37.9	36.3	13.8
	5		North Shield	98.9	30.2	1.0	33.5	51.8	35.8	14.0
	5		South Shield	93.6	39.9	1.5	34.9	53.6	35.0	13.6
	6		North Shield	97.7	97.7	1.0	41.4	52.6	38.5	14.6
	6		South Shield	99.0	99.0	1.4	30.1	45.0	36.1	13.8
Mean				95.5	85.3	1.3	30.3	50.7	36.3	13.9
SD				3.7	23.8	0.3	5.8	10.1	1.1	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-12. Test 12 north and south shield pressure-time values for sheep numbers 672 and 673.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
9/19/96	1	171	North Shield	101.3	101.3	1.3	37.6	48.6	37.7	14.2
	1		South Shield	95.7	95.7	1.2	24.1	68.3	35.8	13.9
	2		North Shield	92.2	92.2	1.2	37.7	61.6	37.0	14.0
	2		South Shield	99.1	99.1	1.2	24.0	47.0	34.4	13.3
	3		North Shield	93.9	93.9	1.1	37.8	61.6	37.1	14.3
	3		South Shield	91.1	91.1	1.2	28.0	45.7	35.7	13.6
	4		North Shield	91.2	91.2	1.2	37.7	76.4	37.0	13.9
	4		South Shield	94.8	94.8	1.1	23.8	38.4	33.1	12.8
	5		North Shield	89.9	13.4	1.3	37.7	71.6	37.0	13.9
	5		South Shield	90.4	90.4	1.1	32.9	54.4	35.3	13.5
	6		North Shield	96.4	96.4	1.1	40.6	54.8	37.0	13.9
	6		South Shield	87.3	87.3	1.2	27.9	67.2	33.3	12.7
Mean				93.6	87.2	1.2	32.5	58.0	35.9	13.7
SD				4.1	23.6	0.1	6.5	11.7	1.6	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-13. Test 13 north and south shield pressure-time values for sheep numbers 674 and 675.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
9/24/96	1	171	North Shield	97.6	97.6	1.1	33.4		36.9	14.0
	1		South Shield	100.8	100.8	1.4	29.2	49.3	34.7	13.5
	2		North Shield	96.0	96.0	1.0	37.2	55.5	35.1	13.4
	2		South Shield	85.5	85.5	2.0	33.3	60.9	36.0	13.5
	3		North Shield	97.0	97.0	1.2	36.8	73.6	36.7	14.0
	3		South Shield	96.3	96.3	1.4	33.3	37.6	33.7	14.5
	4		North Shield	98.3	98.3	1.0	23.9	46.6	35.4	13.7
	4		South Shield	90.1	90.1	1.3	29.4	51.2	33.9	13.2
	5		North Shield	95.9	95.9	1.0	23.5	62.4	34.1	13.3
	5		South Shield	98.0	98.0	1.6	29.5	38.9	37.1	13.8
	6		North Shield	91.0	91.0	1.1	22.4	76.5	34.7	13.4
	6		South Shield	87.8	87.8	1.5	37.3	53.0	35.7	13.3
Mean				94.5	94.5	1.3	30.8	55.0	35.3	13.6
SD				4.7	4.7	0.3	5.4	12.6	1.2	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-14. Test 14 north and south shield pressure-time values for sheep numbers 676 and 677.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
9/29/96	1	171	North Shield	103.6	103.6	1.1	23.5	77.2	38.2	14.4
	1		South Shield	92.1	92.1	1.2	31.6	62.8	34.6	13.5
	2		North Shield	97.7	39.8	1.2	42.2	56.6	36.3	13.9
	2		South Shield	86.2	53.2	1.2	34.6	67.7	34.5	13.4
	3		North Shield	91.9	91.9	1.2	36.3	62.1	37.2	14.0
	3		South Shield	91.0	91.0	1.0	27.7	38.0	33.4	12.9
	4		North Shield	97.6	97.6	1.1	37.1	61.3	36.4	14.0
	4		South Shield	87.2	87.2	1.0	28.3	38.0	33.7	13.3
	5		North Shield	104.4	104.4	1.1	42.1	61.3	36.7	14.2
	5		South Shield	93.1	93.1	1.0	36.9	61.7	34.4	14.4
	6		North Shield	100.0	100.0	1.0	36.4	62.2	37.2	14.2
	6		South Shield	89.6	89.6	1.0	36.3	53.2	34.6	13.6
Mean				94.5	87.0	1.1	34.4	58.5	35.6	13.8
SD				6.1	19.8	0.1	5.7	11.2	1.6	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-15. Test 15 north and south shield pressure-time values for sheep numbers 680 and 681.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/3/96	1	285	North Shield	120.5	19.9	0.9	26.2	70.6	45.1	17.4
	1		South Shield	116.0	18.7	1.3	29.0	60.7	43.2	17.6
	2		North Shield	114.5	114.5	0.9	41.2	62.5	47.2	18.3
	2		South Shield	122.4	18.7	1.5	29.1	49.3	43.6	18.4
	3		North Shield	119.6	119.6	0.9	38.8	44.7	46.1	18.2
	3		South Shield	119.7	18.1	1.4	29.1	50.3	44.5	17.7
	4		North Shield	113.2	21.6	0.9	41.2	56.8	45.5	18.2
	4		South Shield	123.4	123.4	1.6	29.0	50.5	45.7	18.6
	5		North Shield	119.1	119.1	0.9	38.6	42.0	47.7	18.3
	5		South Shield	119.7	119.7	1.6	36.9	46.7	44.7	17.2
	6		North Shield	108.9	17.9	1.1	41.8	100.5	44.1	17.4
	6		South Shield	120.8	120.8	1.3	29.2	41.5	45.1	17.4
	7		North Shield	118.8	20.6	0.9	33.8	79.2	46.1	18.2
	7		South Shield	127.4	127.4	1.5	36.7	37.2	46.2	17.5
	8		North Shield	111.6	17.6	1.1	41.8	61.4	43.9	17.7
	8		South Shield	116.3	116.3	1.2	29.1	53.3	45.9	18.1
	9		North Shield	113.9	113.3	1.0	39.0	61.4	46.4	18.2
	9		South Shield	121.8	121.8	1.4	29.2	44.5	47.3	17.9
	10		North Shield	113.3	113.3	1.0	41.8	68.3	45.5	19.0
	10		South Shield	123.4	123.4	1.3	25.8	46.2	46.5	17.7
	11		North Shield	110.1	110.1	1.2	37.5	73.5	46.0	17.9
	11		South Shield	112.9	112.9	1.3	29.2	53.1	44.5	17.0
	12		North Shield	120.6	120.6	1.0	25.4	68.5	45.5	17.7
	12		South Shield	120.5	120.5	1.2	29.1	49.5	43.0	18.2
	13		North Shield	111.0	15.7	1.0	35.2	70.0	44.9	17.8
	13		South Shield	116.8	116.8	1.2	37.2	53.3	44.7	18.8
	14		North Shield	117.0	115.8	0.9	38.7	77.1	45.3	17.9
	14		South Shield	113.3	113.3	1.3	37.0	51.0	46.0	17.6
	15		North Shield	116.3	22.3	0.9	39.1	42.7	45.5	18.2
	15		South Shield	121.3	121.3	1.6	36.8	46.3	46.5	17.4
	16		North Shield	115.3	115.3	1.0	39.0	75.5	45.9	17.9
	16		South Shield	116.0	17.0	0.9	25.5	48.1	41.7	16.5
	17		North Shield	116.5	116.5	1.0	38.8	74.5	44.7	18.5
	17		South Shield	112.2	112.2	1.0	29.2	67.1	44.6	18.3
	18		North Shield	116.6	23.8	0.9	41.8	45.6	45.5	18.2
	18		South Shield	118.0	118.0	1.4	37.0	49.3	46.4	17.8
	19		North Shield	124.4	20.8	0.9	39.2	72.4	44.3	18.2
	19		South Shield	111.5	111.5	1.4	27.6	59.8	44.9	17.2
	20		North Shield	113.8	18.6	0.9	37.5	86.5	46.2	19.9
	20		South Shield	117.0	117.0	1.4	37.2	63.1	44.3	18.9
	21		North Shield	118.7	118.7	0.9	38.5	42.9	47.3	18.7
	21		South Shield	112.7	112.7	1.3	30.2	44.5	44.7	18.4
	22		North Shield	119.9	19.2	0.9	30.7	42.7	45.7	18.8
	22		South Shield	122.3	122.3	1.3	29.0	49.4	46.4	17.9
	23		North Shield	114.6	20.0	1.1	39.2	89.9	44.5	17.8
	23		South Shield	113.8	113.8	1.4	25.7	46.9	45.7	17.4

Table C-15. Test 15 north and south shield pressure-time values for sheep numbers 680 and 681.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/3/96	24	285	North Shield	117.6	117.6	1.0	41.6	66.5	45.5	17.9
	24		South Shield	121.4	121.4	1.2	33.3	42.0	47.2	17.9
	25		North Shield	115.7	115.7	1.0	43.3	55.3	45.3	17.8
	25		South Shield	120.2	18.6	1.1	33.5	50.6	43.3	19.9
	26		North Shield	119.4	20.0	0.9	37.7	47.0	44.5	17.7
	26		South Shield	123.4	123.4	1.4	29.0	64.1	46.7	17.9
	27		North Shield	113.3	16.9	0.9	42.5	66.4	44.8	17.7
	27		South Shield	126.1	18.2	1.3	29.6	48.9	45.8	18.6
	28		North Shield	120.0	17.0	0.9	33.1	61.6	44.7	17.9
	28		South Shield	115.9	20.1	1.4	37.0	92.1	48.1	20.6
	29		North Shield	111.5	111.5	1.0	42.7	77.8	45.2	17.9
	29		South Shield	127.1	127.1	1.3	23.4	42.5	46.4	17.9
	30		North Shield	124.1	124.1	0.8	37.7	41.7	45.0	17.9
	30		South Shield	115.1	115.1	1.3	37.0	63.5	47.2	21.0
	31		North Shield	118.0	118.0	1.1	37.9	71.0	46.5	18.3
	31		South Shield	120.7	120.7	1.3	42.3	73.3	45.1	20.5
	32		North Shield	115.9	115.9	1.0	38.6	61.6	45.9	18.2
	32		South Shield	121.4	121.4	1.3	37.1	63.6	46.9	19.3
	33		North Shield	118.2	32.6	0.9	38.5	55.3	43.7	17.6
	33		South Shield	123.9	44.7	1.3	31.3	93.9	46.8	18.1
	34		North Shield	119.6	119.6	1.0	40.9	46.3	45.8	18.0
	34		South Shield	114.0	114.0	1.4	41.3	67.2	46.9	18.9
	35		North Shield	120.6	120.6	1.0	33.2	62.0	44.8	17.8
	35		South Shield	123.5	123.5	1.3	23.0	73.4	46.3	18.7
	36		North Shield	113.4	113.4	1.0	36.6	42.2	44.4	17.4
	36		South Shield	117.2	19.3	1.3	28.9	46.2	46.2	17.9
	37		North Shield	117.6	117.6	0.9	32.8	76.5	46.3	18.0
	37		South Shield	122.3	122.3	1.3	23.2	37.2	46.5	17.8
	38		North Shield	118.8	118.8	0.9	37.0	75.7	45.5	17.9
	38		South Shield	119.6	119.6	1.5	28.8	66.6	46.6	18.0
	39		North Shield	115.1	115.1	1.1	37.8	66.5	46.9	18.2
	39		South Shield	125.0	18.6	1.5	37.0	98.8	47.9	19.8
	40		North Shield	120.6	120.6	0.9	37.6	64.2	45.6	18.2
	40		South Shield	119.2	119.2	1.4	29.2	86.3	48.4	18.7
	41		North Shield	115.7	115.7	1.0	42.5	56.7	43.8	17.5
	41		South Shield	128.4	128.4	1.3	27.9	50.9	47.8	18.2
	42		North Shield	121.2	121.2	0.9	23.4	74.5	45.8	18.3
	42		South Shield	124.5	124.5	1.3	28.7	44.6	46.3	17.9
	43		North Shield	122.9	122.9	0.8	36.9	78.3	44.9	18.2
	43		South Shield	120.7	120.7	1.4	22.9	53.6	46.9	18.0
	44		North Shield	122.3	122.3	0.8	23.1	62.2	45.1	17.9
	44		South Shield	120.2	120.2	1.5	37.3	54.0	47.1	18.1
	45		North Shield	121.2	116.4	1.0	25.6	41.8	45.8	17.9
	45		South Shield	117.7	16.6	1.4	29.4	75.2	45.3	17.3
	46		North Shield	113.9	112.7	0.9	36.3	42.7	46.0	18.7
	46		South Shield	128.5	128.5	1.2	25.0	45.0	47.1	19.1

Table C-15. Test 15 north and south shield pressure-time values for sheep numbers 680 and 681.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/3/97	47	285	North Shield	123.0	123.0	0.9	22.9	41.6	45.9	18.3
	47		South Shield	119.6	119.6	1.4	25.2	60.0	47.2	19.2
	48		North Shield							
	48		South Shield							
	49		North Shield	123.3	123.3	0.8	32.5	38.1	44.8	18.3
	49		South Shield	128.5	128.5	1.4	23.4	37.3	46.3	18.2
	50		North Shield	122.3	122.3	0.9	37.0	42.1	46.5	19.5
	50		South Shield	124.0	124.0	1.3	28.9	41.2	47.5	20.2
Mean				118.8	91.9	1.1	33.7	58.8	45.7	18.2
SD				4.4	44.5	0.2	6.0	15.2	1.2	0.8

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-16. Test 16 north and south shield pressure-time values for sheep numbers 682 and 683.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/8/96	1	171	North Shield	91.0	91.0	1.3	42.2	133.4	36.9	14.2
	1		South Shield	100.6	100.6	1.3	33.5	58.1	35.8	13.6
	2		North Shield	92.2	33.1	0.9	38.4	171.5	34.8	13.7
	2		South Shield	97.3	38.8	1.5	33.9	42.2	35.8	13.5
	3		North Shield	85.9	85.9	1.2	39.8	61.8	35.6	13.8
	3		South Shield	95.2	95.2	1.5	29.6	63.6	36.8	13.8
	4		North Shield	91.8	91.8	1.2	36.6	61.7	36.5	13.9
	4		South Shield	97.9	97.9	1.5	28.4	42.1	37.9	14.1
	5		North Shield	93.9	93.9	1.1	36.7	44.7	36.4	14.1
	5		South Shield	100.9	100.9	1.5	28.1	37.6	37.2	14.1
	6		North Shield	87.6	87.6	1.2	39.1	74.7	35.4	13.5
	6		South Shield	93.1	93.1	1.4	37.1	53.5	36.6	13.9
	7		North Shield	95.9	95.9	1.1	44.1	79.2	35.9	13.7
	7		South Shield	93.0	93.0	1.4	42.0	66.6	36.1	13.8
	8		North Shield	88.0	88.0	1.0	41.4	45.2	35.2	13.7
	8		South Shield	88.4	88.4	1.4	29.5	51.1	34.5	13.1
	9		North Shield	83.7	83.7	1.0	40.7	63.0	34.7	13.7
	9		South Shield	85.9	85.9	1.4	24.2	40.7	36.1	13.6
	10		North Shield	104.4	104.4	1.1	22.4	44.4	36.2	14.1
	10		South Shield	94.9	94.9	1.6	29.4	46.5	36.7	13.7
	11		North Shield	103.0	103.0	1.1	38.1	63.8	36.2	14.1
	11		South Shield	94.7	94.7	1.4	29.7	50.9	36.0	13.5
	12		North Shield	102.4	102.4	1.0	37.0	44.7	37.3	14.2
	12		South Shield	98.9	98.9	1.4	22.1	44.9	35.8	13.7
	13		North Shield	91.0	30.8	1.2	40.7	48.6	36.2	13.7
	13		South Shield	94.0	43.5	1.5	32.4	40.4	36.1	13.7
	14		North Shield	98.9	98.9	1.0	40.3	53.3	35.7	13.9
	14		South Shield	97.2	97.2	1.3	29.2	47.2	34.7	13.4
	15		North Shield	96.4	96.4	1.1	36.7	48.8	37.3	14.2
	15		South Shield	93.8	93.8	1.3	36.0	37.4	35.2	13.3
	16		North Shield	97.5	97.5	1.0	23.4	61.8	35.3	12.8
	16		South Shield	95.6	95.6	1.7	22.8	46.5	37.0	14.0
	17		North Shield	95.9	95.9	1.1	36.7	47.9	36.3	13.8
	17		South Shield	100.5	100.5	1.5	22.1	53.9	36.1	13.8
	18		North Shield	96.8	96.8	1.2	38.0	85.5	36.9	14.7
	18		South Shield	100.6	100.6	1.6	36.0	39.4	35.8	13.7
	19		North Shield	97.0	48.8	1.2	42.2	47.9	36.9	14.1
	19		South Shield	97.8	65.9	1.7	32.3	41.1	36.1	13.5
	20		North Shield	96.6	96.6	1.0	36.2	49.2	36.1	13.9
	20		South Shield	96.9	96.9	1.3	29.4	37.4	35.2	13.5
	21		North Shield	95.2	95.2	1.0	22.6	45.6	34.8	13.4
	21		South Shield	98.5	98.5	1.4	28.3	44.4	35.4	13.5
	22		North Shield	97.5	57.7	1.0	44.0	67.6	35.7	13.9
	22		South Shield	88.9	77.7	1.5	42.1	68.9	35.7	13.5
	23		North Shield	101.8	101.8	1.1	38.0	63.0	37.2	14.2
	23		South Shield	96.9	96.9	1.2	28.1	53.7	34.6	13.1

Table C-16. Test 16 north and south shield pressure-time values for sheep numbers 682 and 683.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/8/97	24	171	North Shield	97.5	97.5	1.2	41.3	75.1	36.8	14.2
	24		South Shield	90.1	90.1	1.4	32.2	47.0	35.3	13.5
	25		North Shield	94.3	32.3	1.1	41.9	45.6	36.7	14.0
	25		South Shield	101.1	47.9	1.4	23.0	37.5	34.6	13.2
	26		North Shield	91.6	91.6	1.0	22.5	48.8	34.9	13.6
	26		South Shield	94.8	94.8	1.6	36.1	109.1	36.8	13.8
	27		North Shield	104.4	104.4	1.1	36.9	76.4	37.1	14.1
	27		South Shield	101.1	101.1	1.4	28.2	41.9	35.2	13.6
	28		North Shield	101.9	101.9	1.1	36.7	61.7	38.1	14.5
	28		South Shield	98.4	98.4	1.5	28.4	37.6	37.3	14.1
	29		North Shield	106.7	106.7	1.2	36.8	64.3	36.4	14.2
	29		South Shield	95.2	95.2	1.3	28.2	50.6	36.0	13.8
	30		North Shield	99.4	99.4	1.1	22.4	74.4	37.6	14.2
	30		South Shield	99.1	99.1	1.3	28.2	37.6	36.0	13.9
	31		North Shield	100.0	100.0	1.0	36.8	44.7	36.5	14.1
	31		South Shield	103.3	103.3	1.4	28.4	63.9	36.9	13.9
	32		North Shield	91.6	91.6	1.2	36.9	74.4	34.1	14.5
	32		South Shield	104.4	104.4	1.3	36.0	47.1	37.9	14.4
	33		North Shield	95.2	95.2	1.2	22.4	49.2	34.5	14.3
	33		South Shield	99.7	99.7	1.4	29.9	52.3	38.2	14.2
	34		North Shield	96.5	96.5	1.2	38.0	43.3	36.1	14.8
	34		South Shield	96.8	96.8	1.4	28.5	64.3	37.5	14.1
	35		North Shield	100.1	100.1	1.1	40.6	61.8	35.5	14.1
	35		South Shield	107.9	107.9	1.3	28.2	37.6	39.5	14.9
	36		North Shield	85.2	24.3	1.3	43.5	91.7	34.2	13.9
	36		South Shield	106.1	33.7	1.3	36.8	53.2	37.4	15.0
	37		North Shield	91.7	91.7	0.9	36.7	44.0	33.7	14.3
	37		South Shield	102.2	102.2	1.2	28.0	37.4	38.3	14.2
	38		North Shield	96.7	96.7	1.3	41.3	73.6	35.6	13.9
	38		South Shield	103.2	103.2	1.3	28.3	37.4	38.5	14.2
	39		North Shield	93.7	93.7	1.1	36.7	44.7	34.1	14.7
	39		South Shield	106.1	106.1	1.3	27.9	46.2	37.0	14.2
	40		North Shield	94.0	94.0	1.2	42.6	89.0	34.9	13.9
	40		South Shield	105.9	105.9	1.3	28.1	42.0	38.8	14.4
	41		North Shield	85.5	85.5	1.2	37.9	75.3	35.5	15.4
	41		South Shield	103.9	103.9	1.3	28.2	53.5	38.2	14.3
	42		North Shield	92.4	92.4	1.0	36.7	67.1	33.7	14.7
	42		South Shield	100.5	100.5	1.3	42.5	105.1	38.1	14.3
	43		North Shield	93.3	93.3	1.0	40.5	47.3	34.0	13.4
	43		South Shield	106.8	106.8	1.3	27.7	46.6	38.4	14.3
	44		North Shield	97.8	97.8	1.0	38.1	46.3	33.5	13.1
	44		South Shield	96.4	96.4	1.4	22.2	46.3	36.6	13.8
	45		North Shield	101.4	101.4	1.0	22.2	47.3	34.3	13.5
	45		South Shield	99.5	99.5	1.2	28.3	49.7	37.6	14.0
	46		North Shield	94.0	94.0	1.1	38.6	84.8	34.0	13.2
	46		South Shield	100.6	100.6	1.3	28.5	46.3	37.2	13.9

Table C-16. Test 16 north and south shield pressure-time values for sheep numbers 682 and 683.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/8/97	47	171	North Shield	90.4	90.4	1.2	40.1	49.2	35.0	13.7
	47		South Shield	109.8	109.8	1.4	28.3	37.9	38.2	14.4
	48		North Shield	91.6	91.6	1.2	46.9	79.6	35.2	13.7
	48		South Shield	103.8	18.7	1.2	34.9	42.5	38.3	14.4
	49		North Shield	103.7	103.7	1.0	29.9	47.9	36.2	14.3
	49		South Shield	105.7	105.7	1.4	34.0	49.1	37.4	13.9
	50		North Shield	95.8	95.8	1.1	31.7	90.5	36.3	14.0
	50		South Shield	102.3	102.3	1.3	28.7	44.9	36.1	13.7
Mean				97.2	90.2	1.2	33.5	56.8	36.2	13.9
SD				5.5	20.1	0.2	6.5	20.9	1.3	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-17. Test 17 north and south shield pressure-time values for sheep numbers 684 and 685.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/10/96	1	171	North Shield	90.5	90.5	1.2	46.8	380.4	36.5	13.8
	1		South Shield	100.6	100.6	1.4	28.3	37.7	36.8	13.9
	2		North Shield	92.2	92.2	1.1	37.4	47.9	37.2	14.2
	2		South Shield	93.1	93.1	1.5	28.3	62.2	36.7	13.9
	3		North Shield	92.2	92.2	1.1	36.5	44.6	35.7	13.6
	3		South Shield	91.5	91.5	1.3	32.0	44.6	36.1	13.8
	4		North Shield	93.4	17.5	1.2	39.3	75.1	36.5	14.1
	4		South Shield	93.3	24.1	1.5	31.0	51.8	38.3	14.3
	5		North Shield	94.6	94.6	1.0	36.8	87.7	36.0	13.9
	5		South Shield	95.2	95.2	1.4	28.1	56.1	36.0	13.8
	6		North Shield	88.1	88.1	1.0	42.5	78.1	35.1	13.8
	6		South Shield	96.8	96.8	1.3	39.6	57.9	35.0	13.7
	7		North Shield	92.8	92.8	1.0	36.8	73.9	34.4	13.6
	7		South Shield	88.8	88.8	1.4	29.9	53.2	34.7	13.2
	8		North Shield	88.0	88.0	1.0	36.8	73.8	34.9	13.5
	8		South Shield	92.6	92.6	1.4	28.2	44.4	36.9	13.8
	9		North Shield	93.4	93.4	1.1	36.6	84.3	36.6	13.9
	9		South Shield	96.3	96.3	1.4	28.0	50.6	36.5	13.9
	10		North Shield	90.6	90.6	1.1	36.7	73.7	36.5	13.8
	10		South Shield	98.4	98.4	1.4	28.3	50.4	36.1	13.7
	11		North Shield	94.7	94.7	1.1	41.4	73.7	35.5	13.6
	11		South Shield	98.8	98.8	1.3	28.4	37.6	36.0	13.9
	12		North Shield	96.6	96.6	1.1	37.6	74.5	37.2	14.3
	12		South Shield	93.1	93.1	1.3	28.3	53.4	35.7	13.7
	13		North Shield	90.4	88.6	1.2	36.9	74.6	35.8	13.6
	13		South Shield	103.7	103.7	1.3	29.5	45.0	36.1	13.7
	14		North Shield	88.7	86.3	1.3	42.6	75.9	35.2	13.6
	14		South Shield	100.0	100.0	1.0	24.4	50.5	34.3	13.2
	15		North Shield	91.7	91.7	1.2	29.5	76.8	36.1	13.7
	15		South Shield	100.0	100.0	1.4	36.8	61.6	36.3	14.0
	16		North Shield	92.7	92.7	1.1	40.7	44.7	36.9	13.9
	16		South Shield	95.6	95.6	1.3	28.2	46.4	35.9	13.7
	17		North Shield	93.6	90.0	1.1	40.5	78.6	34.0	13.1
	17		South Shield	97.3	97.3	1.4	28.2	49.8	36.1	13.4
	18		North Shield	89.2	88.0	1.0	38.0	51.1	36.3	14.2
	18		South Shield	100.6	100.6	1.3	32.2	46.3	36.5	13.8
	19		North Shield	90.4	90.4	1.0	38.9	78.2	35.1	14.2
	19		South Shield	96.9	96.9	1.3	28.2	46.9	35.0	13.1
	20		North Shield	88.0	86.2	1.2	40.7	76.6	36.9	14.2
	20		South Shield	97.2	97.2	1.4	29.0	67.9	35.6	13.2
	21		North Shield	93.4	93.4	1.1	42.6	79.6	36.8	14.0
	21		South Shield	99.3	99.3	1.4	33.4	57.7	37.0	14.0
	22		North Shield	94.9	94.9	1.2	42.5	66.6	35.4	13.7
	22		South Shield	105.6	105.6	1.4	34.2	42.0	36.6	14.1
	23		North Shield	86.9	86.9	1.1	37.4	62.1	36.0	13.7
	23		South Shield	89.6	89.6	1.4	37.1	56.6	35.6	13.6

Table C-17. Test 17 north and south shield pressure-time values for sheep numbers 684 and 685.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/10/97	24	171	North Shield	85.0	85.0	1.0	41.3	75.2	35.7	13.8
	24		South Shield	93.1	93.1	1.4	36.2	120.2	36.2	14.9
	25		North Shield	89.8	89.8	1.1	36.9	79.2	36.5	13.9
	25		South Shield	98.0	98.0	1.4	28.3	42.0	34.7	13.4
	26		North Shield	93.0	93.0	1.2	36.7	43.4	35.7	14.0
	26		South Shield	96.8	96.8	1.2	28.4	37.7	35.1	13.5
	27		North Shield	80.7	23.4	1.0	43.5	75.3	34.4	13.5
	27		South Shield	94.5	23.8	1.3	28.7	39.3	34.0	13.2
	28		North Shield	87.4	86.8	1.0	39.3	77.3	34.3	13.6
	28		South Shield	77.1	76.6	1.0	39.3	77.3	30.3	12.0
	37		North Shield	86.9	85.1	1.0	41.4	75.2	34.4	13.1
	37		South Shield	94.2	94.2	1.2	23.4	45.5	32.8	12.8
	38		North Shield	97.0	97.0	1.1	22.2	43.6	35.7	14.5
	38		South Shield	96.0	96.0	1.3	29.6	46.1	33.6	13.0
	39		North Shield	94.4	94.4	1.2	38.0	44.8	36.8	14.0
	39		South Shield	94.5	94.5	1.4	27.8	64.6	34.0	13.2
	40		North Shield	88.6	83.8	1.0	22.1	73.8	35.1	13.7
	40		South Shield	98.4	98.4	1.1	22.1	46.0	34.0	13.1
	41		North Shield	92.7	92.7	1.0	43.0	84.5	35.4	13.9
	41		South Shield	88.6	88.6	1.4	29.7	57.5	33.6	12.7
	42		North Shield	90.4	90.4	1.0	36.8	47.9	36.7	14.2
	42		South Shield	98.4	98.4	1.4	29.6	46.2	34.2	13.3
	43		North Shield	91.6	88.0	1.2	38.7	76.4	34.8	15.1
	43		South Shield	92.7	92.7	1.3	22.1	46.5	34.1	13.1
	44		North Shield	88.1	88.1	1.2	36.8	73.7	36.4	13.8
	44		South Shield	96.4	96.4	1.4	27.8	46.5	34.0	13.0
	45		North Shield	89.3	89.3	1.2	36.8	74.0	37.8	14.3
	45		South Shield	96.3	96.3	1.2	28.4	46.2	33.4	12.8
	46		North Shield	88.2	88.2	1.2	38.7	75.2	35.8	13.7
	46		South Shield	97.4	97.4	1.5	22.5	37.6	34.1	13.2
	47		North Shield	91.6	91.6	1.0	43.3	79.3	35.2	13.7
	47		South Shield	91.5	91.5	1.4	34.8	51.4	34.3	13.1
	48		North Shield	94.0	94.0	1.0	36.7	75.4	35.8	13.9
	48		South Shield	95.8	95.8	1.4	28.3	46.0	33.9	12.9
	49		North Shield	92.2	91.6	1.1	36.6	64.8	36.5	14.0
	49		South Shield	94.7	94.7	1.3	29.6	108.5	34.4	13.4
	50		North Shield	84.2	83.6	1.3	41.3	75.1	36.8	14.3
	50		South Shield	96.2	96.2	1.3	28.2	42.1	33.5	12.9
Mean				93.2	89.6	1.2	33.9	65.1	35.5	13.7
SD				4.7	15.9	0.2	6.2	38.7	1.3	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-18. Test 18 north and south shield pressure-time values for sheep numbers 686 and 687.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/15/96	1	171	North Shield	93.3	93.3	1.3	43.3	117.9	36.6	14.2
	1		South Shield	91.5	91.5	1.4	31.2	46.5	38.2	13.9
	2		North Shield	86.2	85.0	1.2	39.8	76.7	35.2	13.5
	2		South Shield	81.4	81.4	1.6	37.5	63.7	34.6	12.9
	3		North Shield	80.8	80.1	1.2	37.9	84.7	35.2	13.7
	3		South Shield	84.9	84.9	1.4	31.3	51.2	34.2	12.9
	4		North Shield	86.2	86.2	1.1	42.2	76.7	35.9	14.0
	4		South Shield	82.4	82.4	1.6	36.8	62.1	36.6	13.7
	5		North Shield	94.1	94.1	1.3	44.8	56.4	37.8	14.4
	5		South Shield	85.3	85.3	1.4	36.5	56.1	35.2	13.2
	6		North Shield	87.4	86.2	1.0	36.6	45.6	37.4	14.3
	6		South Shield	83.0	83.0	1.5	33.5	53.8	36.2	13.4
	7		North Shield	89.2	88.6	1.2	42.2	76.7	36.8	14.2
	7		South Shield	81.1	81.1	1.4	36.9	46.1	35.7	13.4
	8		North Shield	81.9	78.3	1.2	42.2	84.4	36.6	14.0
	8		South Shield	75.5	75.5	1.5	37.3	78.0	34.4	12.8
	9		North Shield	88.6	88.6	1.0	44.4	81.6	36.9	14.0
	9		South Shield	91.7	80.6	0.0	9.8	20.6	0.7	13.6
	10		North Shield	91.0	90.4	1.2	42.1	48.7	37.6	14.2
	10		South Shield	79.3	79.3	1.5	32.1	63.7	34.9	13.1
	11		North Shield	94.6	94.6	1.2	40.9	76.6	37.7	14.3
	11		South Shield	86.2	86.2	1.4	37.3	53.8	35.1	13.4
	12		North Shield	91.7	89.9	1.2	41.4	75.1	36.6	14.0
	12		South Shield	74.3	74.3	1.3	29.2	37.8	32.5	12.4
	13		North Shield	90.5	90.5	1.0	38.2	76.8	36.3	13.6
	13		South Shield	82.1	82.1	1.5	32.2	49.8	35.3	13.4
	14		North Shield	87.4	85.0	1.3	40.8	45.8	38.0	15.2
	14		South Shield	85.7	85.7	1.4	37.3	49.7	34.3	13.0
	15		North Shield	94.6	94.6	1.2	38.2	74.7	37.8	14.6
	15		South Shield	83.1	83.1	1.5	24.5	63.6	34.1	13.3
	16		North Shield	92.8	29.6	1.1	40.8	78.0	37.3	14.1
	16		South Shield	79.0	41.2	1.5	36.4	66.2	34.2	13.1
	17		North Shield	92.8	92.8	1.0	38.9	61.5	35.9	14.0
	17		South Shield	76.6	76.6	1.8	32.3	49.4	34.5	12.9
	18		North Shield	86.8	86.2	1.1	41.7	74.6	36.7	14.0
	18		South Shield	78.2	78.2	1.5	37.4	82.9	33.5	13.1
	19		North Shield	90.5	90.5	1.0	39.3	61.8	34.0	13.1
	19		South Shield	73.1	10.8	1.5	37.6	64.7	33.4	12.7
	20		North Shield	86.8	84.4	1.2	38.2	81.0	37.4	14.6
	20		South Shield	82.0	12.3	1.3	37.5	70.2	34.0	13.1
	21		North Shield	85.0	82.6	1.2	41.3	74.5	36.5	14.0
	21		South Shield	75.6	75.6	1.4	36.3	74.5	34.7	13.3
	22		North Shield	89.2	70.5	1.2	47.6	80.9	37.2	14.5
	22		South Shield	94.7	94.7	0.0	7.9	22.4	0.9	13.1
	23		North Shield	88.6	86.2	1.1	37.8	76.2	36.7	13.9
	23		South Shield	81.0	81.0	1.3	33.5	62.6	32.5	12.7

Table C-18. Test 18 north and south shield pressure-time values for sheep numbers 686 and 687.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/15/97	24	171	North Shield	92.9	92.9	1.0	38.2	71.4	36.3	13.8
	24		South Shield	76.1	76.1	1.3	37.3	56.2	33.4	12.9
	25		North Shield	88.0	19.9	1.2	44.2	90.2	36.8	14.0
	25		South Shield	75.1	28.3	1.3	42.3	237.0	35.4	13.5
	26		North Shield	89.3	86.9	1.2	41.4	75.3	37.8	14.3
	26		South Shield	81.9	81.9	1.4	29.6	64.6	32.9	13.6
	27		North Shield	88.0	88.0	1.1	36.9	75.9	37.3	14.1
	27		South Shield	85.2	85.2	1.3	28.3	53.8	33.6	12.9
	28		North Shield	94.1	94.1	1.2	41.7	99.9	37.6	14.7
	28		South Shield	84.6	84.6	1.4	37.2	53.8	35.5	13.5
	29		North Shield	86.9	86.2	1.2	41.0	46.6	36.7	14.0
	29		South Shield	84.9	84.9	1.4	37.4	64.4	32.8	13.5
	30		North Shield	93.0	93.0	1.2	38.1	74.8	36.7	14.3
	30		South Shield	86.1	86.1	1.4	29.5	62.0	34.7	13.5
	31		North Shield	92.9	91.7	1.2	36.6	74.6	37.3	14.5
	31		South Shield	85.4	85.4	1.4	29.4	53.8	33.6	13.0
	32		North Shield	92.8	92.8	1.1	22.5	77.4	36.9	14.2
	32		South Shield	79.8	79.8	1.4	37.5	65.6	34.7	13.2
	33		North Shield	93.4	92.8	1.2	36.6	45.1	37.6	14.3
	33		South Shield	81.3	81.3	1.4	37.6		34.6	13.8
	34		North Shield	94.6	94.6	1.0	36.8	74.8	38.2	14.7
	34		South Shield	81.4	81.4	1.4	28.2	53.7	33.3	12.7
	35		North Shield	88.6	85.0	1.2	36.9	73.9	37.4	14.9
	35		South Shield	80.9	80.9	1.4	37.2	61.9	33.2	12.6
	36		North Shield	88.6	86.8	1.2	42.1	49.3	38.0	14.5
	36		South Shield	81.9	81.9	1.3	41.9	124.5	33.0	13.8
	37		North Shield	91.7	91.7	1.0	36.7	79.0	33.9	13.2
	37		South Shield	79.8	79.8	1.4	37.0	62.2	35.4	13.2
	38		North Shield	86.8	86.8	1.3	40.7	81.2	35.2	15.8
	38		South Shield	84.0	84.0	1.3	41.8	54.2	35.7	14.3
	39		North Shield	84.4	84.4	1.1	42.7	50.0	34.7	14.0
	39		South Shield	78.8	78.8	1.3	37.2	53.6	33.7	13.0
	40		North Shield	87.1	84.7	1.2	42.1	76.1	35.1	13.6
	40		South Shield	89.3	89.3	1.3	37.2	64.5	35.9	13.4
	41		North Shield	85.3	85.3	1.3	42.2	76.2	35.3	13.6
	41		South Shield	87.2	87.2	1.3	29.6	50.6	36.7	13.7
	42		North Shield	90.5	90.5	1.2	41.5	49.0	34.4	13.3
	42		South Shield	82.5	82.5	1.3	30.1	65.7	36.3	13.6
	43		North Shield	90.4	68.7	1.3	47.0	79.1	36.2	14.2
	43		South Shield	92.9	92.9	0.0	9.6	22.3	0.9	13.9
	44		North Shield	89.8	89.8	1.5	37.1	91.0	36.7	14.1
	44		South Shield	84.6	84.6	1.3	37.1	63.2	35.0	13.3
	45		North Shield	89.8	88.6	1.3	42.3	125.8	35.8	13.8
	45		South Shield	83.5	83.5	1.5	37.3	63.5	36.6	13.7
	46		North Shield	88.0	86.2	1.2	47.3	79.7	36.0	14.4
	46		South Shield	85.1	85.1	1.3	41.9	83.4	36.5	13.6

Table C-18. Test 18 north and south shield pressure-time values for sheep numbers 686 and 687.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/15/97	47	171	North Shield	91.7	91.7	1.2	35.5	90.5	35.8	13.7
	47		South Shield	89.6	89.6	1.2	36.0	55.6	36.2	13.6
	48		North Shield	83.4	83.4	1.3	42.3	74.5	34.1	13.4
	48		South Shield	87.7	87.7	1.2	22.1	65.5	36.6	13.6
	49		North Shield	81.4	81.4	1.1	42.2	85.5	34.2	15.3
	49		South Shield	85.5	85.5	1.3	36.0	63.6	35.2	13.3
	50		North Shield	91.7	91.7	1.3	37.8	75.0	37.0	15.4
	50		South Shield	88.1	88.1	1.3	36.0	69.7	36.0	13.5
Mean				86.2	81.8	1.2	36.8	68.8	34.6	13.7
SD				5.3	15.9	0.3	6.9	24.7	6.1	0.6

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-19. Test 19 north and south shield pressure-time values for sheep numbers 688 and 689.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/17/96	1	90	North Shield	61.5	61.5	1.1	36.5	85.9	27.4	10.6
	1		South Shield	64.4	64.4	1.3	28.2	63.2	26.8	10.3
	2		North Shield	61.8	61.8	1.0	40.3	90.6	27.5	10.6
	2		South Shield	66.1	66.1	1.0	24.2	68.2	26.3	9.8
	3		North Shield	59.7	58.5	1.0	37.2	89.6	27.1	10.5
	3		South Shield	68.3	68.3	1.0	32.3	68.9	25.9	9.7
	4		North Shield	60.4	60.4	1.0	40.5	128.3	26.6	11.2
	4		South Shield	65.5	65.5	1.1	32.2	72.4	25.6	10.2
	5		North Shield	59.7	59.7	1.0	40.6	91.7	26.5	10.4
	5		South Shield	65.4	65.4	1.0	28.6	52.8	26.4	11.0
	6		North Shield	61.5	61.5	1.1	37.4	74.7	27.5	11.6
	6		South Shield	66.0	66.0	1.0	34.3	48.4	25.6	10.9
	7		North Shield	57.9	30.2	1.0	44.8	79.4	26.5	11.1
	7		South Shield	66.8	40.7	1.1	32.5	70.3	25.9	11.1
	8		North Shield	59.8	59.8	1.0	46.1	131.1	26.8	10.2
	8		South Shield	64.9	11.2	1.0	31.5	49.9	25.7	10.0
	9		North Shield	60.9	60.9	1.0	38.0	75.8	27.3	10.5
	9		South Shield	68.7	68.7	1.1	24.3	67.4	25.7	9.5
	10		North Shield	59.7	59.7	1.0	40.8	75.8	26.9	10.2
	10		South Shield	68.8	68.8	1.1	24.3	83.0	25.8	10.6
	11		North Shield	54.9	54.9	1.0	40.7	95.9	26.2	10.2
	11		South Shield	66.5	66.5	1.0	28.6	52.0	25.5	10.4
	12		North Shield	63.2	63.2	1.0	40.5	76.0	26.7	11.8
	12		South Shield	64.9	64.9	1.2	24.1	68.6	26.2	11.0
	13		North Shield	58.6	44.2	1.1	44.5	95.3	27.0	11.0
	13		South Shield	68.1	59.0	1.0	39.4	65.6	25.8	10.5
	14		North Shield	57.3	54.9	1.0	40.6	90.4	26.5	10.2
	14		South Shield	70.7	70.7	1.1	24.4	59.9	25.8	9.9
	15		North Shield	62.0	62.0	1.2	40.6	96.5	27.3	10.4
	15		South Shield	62.3	62.3	1.1	28.7	52.5	25.7	11.2
	16		North Shield	59.7	59.7	1.0	40.8	99.6	27.0	11.1
	16		South Shield	67.2	67.2	1.0	24.2	77.1	25.1	10.4
	17		North Shield	61.1	61.1	1.0	40.4	86.7	26.7	11.4
	17		South Shield	63.8	63.8	1.0	32.2	46.3	25.2	10.4
	18		North Shield	60.3	60.3	1.0	40.7	74.7	27.3	10.6
	18		South Shield	65.4	65.4	1.0	27.3	55.9	26.3	10.0
	19		North Shield	56.0	56.0	1.0	40.9	97.5	26.2	10.5
	19		South Shield	62.8	62.8	1.0	28.8	87.2	26.0	12.0
	20		North Shield	61.4	50.5	1.1	43.8	81.5	27.2	11.7
	20		South Shield	68.1	64.9	1.1	34.1	59.2	25.7	10.0
	21		North Shield	60.5	47.8	1.0	44.2	90.1	26.8	10.5
	21		South Shield	65.6	64.0	1.0	27.8	70.1	25.6	10.3
	22		North Shield	59.7	59.1	1.0	40.9	77.6	27.0	11.5
	22		South Shield	67.6	67.6	1.1	36.2	95.8	25.4	10.8
	23		North Shield	59.1	59.1	1.0	45.2	82.1	26.4	12.2
	23		South Shield	67.1	67.1	1.1	30.9	73.4	25.5	10.6

Table C-19. Test 19 north and south shield pressure-time values for sheep numbers 688 and 689.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/17/97	24	90	North Shield	59.7	58.5	1.0	39.9	87.8	26.3	10.2
	24		South Shield	69.6	69.6	1.0	24.1	50.0	25.1	10.1
	25		North Shield	56.3	56.3	1.0	44.1	127.4	26.8	10.9
	25		South Shield	65.4	65.4	1.1	28.3	87.1	26.1	10.3
	26		North Shield	56.1	56.1	1.2	40.7	120.1	27.7	10.6
	26		South Shield	67.8	67.8	1.1	28.4	56.7	26.8	10.7
	27		North Shield	57.2	57.2	1.0	40.7	85.6	27.4	11.1
	27		South Shield	72.9	72.9	1.5	28.3	73.0	25.1	9.9
	28		North Shield	55.5	55.5	1.0	40.6	89.7	26.7	10.0
	28		South Shield	64.9	64.9	1.1	27.8	56.3	26.3	11.6
	29		North Shield	58.0	57.4	1.0	41.5	75.9	26.2	11.4
	29		South Shield	70.7	70.7	1.1	28.4	69.5	25.5	9.5
	30		North Shield	59.7	59.7	1.1	40.7	109.8	27.2	10.5
	30		South Shield	64.9	64.9	1.0	28.2	69.4	26.3	11.8
	31		North Shield	59.3	59.3	1.3	41.7	87.6	27.1	10.7
	31		South Shield	69.7	69.7	1.1	27.7	66.9	25.6	9.6
	32		North Shield	56.4	55.8	1.2	36.5	103.7	27.6	10.5
	32		South Shield	71.8	71.8	1.2	36.6	145.0	26.1	11.0
	33		North Shield	57.9	56.1	1.0	40.8	125.5	27.0	10.3
	33		South Shield	67.6	67.6	1.1	31.9	63.5	26.8	10.7
	34		North Shield	52.5	52.5	1.0	49.1	96.3	26.7	10.1
	34		South Shield	67.0	67.0	1.0	39.9	67.8	25.0	9.4
	35		North Shield	57.2	56.0	1.0	41.4	78.0	27.1	10.4
	35		South Shield	68.6	68.6	1.1	36.6	93.4	25.7	11.7
	36		North Shield	60.2	60.2	1.1	41.3	75.3	27.4	12.0
	36		South Shield	70.5	70.5	1.1	24.9	51.5	26.0	9.9
	37		North Shield	52.6	52.6	1.2	41.8	89.8	26.4	9.9
	37		South Shield	61.6	61.6	1.0	28.9	151.4	24.8	11.7
	38		North Shield	58.0	56.8	1.0	40.7	103.0	27.0	10.6
	38		South Shield	68.2	68.2	1.1	34.4	149.8	25.7	12.0
	39		North Shield	57.9	57.9	1.0	26.5	99.6	27.9	12.1
	39		South Shield	70.8	70.8	1.1	34.4	73.5	25.9	10.3
	40		North Shield	56.1	54.3	1.0	40.3	116.6	26.6	11.9
	40		South Shield	66.5	66.5	0.9	24.2	114.0	25.2	9.5
	41		North Shield	61.6	61.6	1.0	40.5	89.9	27.0	10.3
	41		South Shield	71.6	71.6	1.1	24.1	72.3	25.4	10.9
	42		North Shield	62.1	29.6	1.0	46.7	69.8	27.5	10.7
	42		South Shield	72.3	19.1	1.2	38.6	78.0	25.7	9.7
	43		North Shield	57.2	57.2	1.0	41.4	103.1	27.0	11.3
	43		South Shield	66.3	66.3	1.0	28.6	77.1	25.8	10.0
	44		North Shield	58.0	58.0	1.0	40.7	91.4	27.2	10.4
	44		South Shield	65.4	65.4	1.0	26.4	87.0	25.5	10.3
	45		North Shield	56.3	54.5	1.0	41.9	109.4	27.0	10.7
	45		South Shield	70.2	70.2	1.0	24.0	69.5	25.7	9.7
	46		North Shield	55.7	55.7	1.0	40.8	95.9	26.9	11.4
	46		South Shield	67.2	67.2	1.0	34.5	72.3	26.2	10.8

Table C-19. Test 19 north and south shield pressure-time values for sheep numbers 688 and 689.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/17/97	47	90	North Shield	60.3	60.3	1.0	41.7	76.8	26.8	10.6
	47		South Shield	72.5	72.5	1.1	27.7	69.2	25.7	10.1
	48		North Shield	61.5	61.5	1.0	37.3	76.9	27.0	10.8
	48		South Shield	65.0	65.0	1.0	26.3	64.6	25.6	9.6
	49		North Shield							
	49		South Shield							
	50		North Shield	57.4	56.8	1.0	40.2	63.9	27.3	11.0
	50		South Shield	68.0	68.0	1.1	28.1	54.7	25.4	11.7
Mean				63.1	60.4	1.1	35.3	82.7	26.4	10.7
SD				5.1	10.1	0.1	6.9	22.2	0.7	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-20. Test 20 north and south shield pressure-time values for sheep numbers 690 and 691.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/22/96	1	90	North Shield							
	1		South Shield	69.9	69.9	1.1	24.6	49.9	26.8	10.0
	2		North Shield							
	2		South Shield	66.0	66.0	1.0	49.7	61.0	26.5	9.8
	3		North Shield							
	3		South Shield	67.0	67.0	1.1	32.9	53.5	26.4	9.7
	4		North Shield							
	4		South Shield	66.0	66.0	0.1	23.5	34.8	1.4	10.0
	5		North Shield							
	5		South Shield	70.4	70.4	1.1	25.6	53.6	26.1	9.6
	6		North Shield							
	6		South Shield	69.3	69.3	1.1	24.6	39.1	26.7	9.6
	7		South Shield	65.7	65.7	1.1	24.5	46.7	26.2	9.7
	8		North Shield							
	8		South Shield	67.1	67.1	1.1	25.4	49.5	27.4	10.8
	9		South Shield	69.1	69.1	1.1	24.2	52.4	26.6	9.9
	10		South Shield	74.8	74.8	1.1	36.3	49.8	26.5	10.0
	11		South Shield	61.6	61.6	1.1	29.5	53.4	26.5	9.8
	11		North Shield							
	12		North Shield							
	12		South Shield	75.2	75.2	1.1	22.9	46.0	26.9	9.9
	13		South Shield	63.5	63.5	1.1	25.5	57.0	26.3	9.7
	13		North Shield							
	14		North Shield							
	14		South Shield	67.7	9.7	1.1	26.0	50.8	26.4	10.0
	15		South Shield	67.1	67.1	1.0	33.0	61.3	26.4	9.9
	15		North Shield							
	16		North Shield							
	16		South Shield	58.1	58.1	1.1	33.0	53.7	26.3	9.8
	17		South Shield	66.5	66.5	1.1	24.0	46.5	26.0	9.4
	17		North Shield							
	18		North Shield							
	18		South Shield	74.7	74.7	1.1	32.9	54.0	26.7	9.9
	19		South Shield	66.1	66.1	1.1	28.3	60.9	26.5	9.8
	19		North Shield							
	20		North Shield							
	20		South Shield	62.4	62.4	1.1	33.3	61.1	26.9	9.8
	21		South Shield	71.3	71.3	1.1	23.3	46.0	26.3	9.7
	21		North Shield							
	22		North Shield							
	22		South Shield	65.2	65.2	1.1	33.0	55.4	26.5	10.6
	23		South Shield	61.0	61.0	1.1	35.3	46.5	25.8	10.0
	23		North Shield							
	24		South Shield	67.4	67.4	1.1	42.8	59.7	26.3	9.8
	25		South Shield	64.5	64.5	1.1	35.2	79.1	26.1	9.6
	26		South Shield	73.5	73.5	1.1	19.8	49.8	26.9	10.0

Table C-20. Test 20 north and south shield pressure-time values for sheep numbers 690 and 691.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	27		North Shield							
	27		South Shield	65.0	65.0	1.1	24.5	49.5	26.8	10.1
	28		North Shield							
	28		South Shield							
	29		North Shield							
	29		South Shield	67.4	67.4	1.1	33.0	55.1	26.7	9.9
	30		North Shield							
	30		South Shield	70.6	70.6	1.0	37.2	89.4	26.8	10.2
	31		North Shield							
	31		South Shield	67.2	67.2	1.0	31.0	46.1	26.4	10.0
	32		North Shield							
	32		South Shield	65.8	63.6	1.1	31.7	63.7	26.3	9.9
	33		North Shield							
	33		South Shield	64.7	64.7	1.0	38.1	58.5	26.4	11.0
	34		North Shield							
	34		South Shield	65.4	65.4	1.1	44.1	60.3	27.0	10.3
	35		North Shield							
	35		South Shield	69.3	69.3	1.0	35.8	88.3	26.9	11.3
	36		North Shield							
	36		South Shield	69.4	69.4	1.0	39.9	66.8	26.8	10.4
	37		North Shield							
	37		South Shield	67.4	67.4	1.0	35.2	46.1	26.8	10.9
	38		North Shield							
	38		South Shield	68.0	68.0	1.0	28.6	136.2	26.5	10.0
	39		North Shield							
	39		South Shield	67.9	67.9	1.0	33.1	84.2	27.1	10.3
	40		North Shield							
	40		South Shield	68.1	68.1	1.1	28.4	52.1	27.1	10.1
	41		North Shield							
	41		South Shield	68.5	68.5	1.0	28.5	82.3	26.5	10.6
	42		North Shield							
	42		South Shield	68.6	68.6	1.1	24.8	80.6	27.0	10.8
	43		North Shield							
	43		South Shield	64.0	23.6	1.1	34.2	57.1	26.5	10.0
	44		North Shield							
	44		South Shield	70.9	70.9	1.0	23.9	49.7	26.5	10.1
	45		North Shield							
	45		South Shield	67.2	67.2	1.1	35.3	60.7	27.3	10.2
	46		North Shield							
	46		South Shield	73.8	73.8	1.0	28.4	60.4	26.7	10.0
	47		South Shield	70.5	70.5	1.2	28.5	81.5	26.8	10.2
	48		North Shield							
	48		South Shield	77.1	77.1	1.0	24.3	53.4	26.9	10.9
	49		North Shield							
	49		South Shield	85.6	69.7	0.6	19.9	44.3	23.6	11.3
	50		North Shield							

Table C-20. Test 20 north and south shield pressure-time values for sheep numbers 690 and 691.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	50		South Shield	69.0	69.0	1.0	29.2	55.2	27.2	11.2
Mean				68.2	65.8	1.0	30.3	59.0	26.0	10.1
SD				4.5	11.0	0.2	6.4	16.9	3.6	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-21. Test 21 north and south shield pressure-time values for sheep numbers 692 and 693.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/24/96	1	90g	North Shield							
	1		South Shield	74.6	74.6	1.0	23.8	52.3	26.9	10.5
	2		North Shield							
	2		South Shield	71.8	71.8	0.9	28.3	44.3	26.2	10.7
	3		North Shield							
	3		South Shield	72.3	72.3	0.9	24.2	50.5	26.7	11.2
	4		North Shield							
	4		South Shield	71.9	71.9	1.0	24.1	44.4	26.6	11.5
	5		North Shield							
	5		South Shield	71.4	71.4	0.9	24.2	38.3	25.5	10.8
	6		North Shield							
	6		South Shield	75.0	75.0	0.9	24.2	37.7	26.0	10.9
	7		North Shield							
	7		South Shield	69.7	69.7	1.0	28.3	51.3	25.9	11.2
	8		North Shield							
	8		South Shield	73.5	73.5	0.9	23.7	38.4	25.8	11.0
	9		North Shield							
	9		South Shield	70.8	70.8	0.9	24.5	52.2	25.9	11.4
	10		North Shield							
	10		South Shield	76.1	76.1	0.9	24.4	37.6	25.9	11.0
	11		North Shield							
	11		South Shield	72.3	72.3	0.9	24.9	51.8	26.2	12.4
	12		North Shield							
	12		South Shield	70.4	70.4	0.9	28.9	38.3	25.7	11.1
	13		North Shield							
	13		South Shield	73.2	73.2	0.9	28.3	43.3	26.0	11.6
	14		North Shield							
	14		South Shield	75.2	75.2	0.9	25.0	37.1	26.3	11.2
	15		North Shield							
	15		South Shield	72.4	72.4	0.9	31.8	43.0	26.0	10.8
	16		North Shield							
	16		South Shield	75.4	75.4	0.9	24.2	37.2	25.8	10.9
	17		North Shield							
	17		South Shield	73.5	73.5	1.0	24.3	38.6	26.1	11.5
	18		North Shield							
	18		South Shield	70.4	70.4	0.9	24.2	39.9	25.4	10.7
	19		North Shield							
	19		South Shield	66.0	66.0	1.2	28.3	32.9	26.2	10.6
	20		North Shield							
	20		South Shield	72.9	72.9	0.9	28.4	38.2	25.8	12.3
	21		North Shield							
	21		South Shield	71.9	71.9	0.9	24.2	37.6	25.3	11.9
	22		North Shield							
	22		South Shield	72.4	72.4	0.9	24.3	43.1	26.1	12.6
	23		North Shield							
	23		South Shield	72.9	72.9	0.9	28.3	38.2	26.2	12.9

Table C-21. Test 21 north and south shield pressure-time values for sheep numbers 692 and 693.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	24		North Shield							
	24		South Shield	76.8	76.8	0.9	24.2	37.8	26.2	11.5
	25		North Shield							
	25		South Shield	68.0	68.0	0.9	28.5	44.5	26.0	12.2
	26		North Shield							
	26		South Shield	74.3	74.3	0.9	24.1	50.3	26.3	12.1
	27		North Shield							
	27		South Shield	73.2	73.2	0.9	24.1	37.9	26.4	11.3
	28		North Shield							
	28		South Shield	73.4	73.4	0.9	28.4	43.0	26.2	12.2
	29		North Shield							
	29		South Shield	71.2	71.2	0.9	29.7	38.4	26.0	11.4
	30		North Shield							
	30		South Shield	75.0	75.0	1.0	22.8	39.8	27.1	11.7
	31		North Shield							
	31		South Shield							
	32		North Shield							
	32		South Shield	71.8	21.8	1.0	27.7	41.0	26.8	11.3
	33		North Shield							
	33		South Shield	70.3	70.3	1.1	28.4	38.2	27.0	11.2
	34		North Shield							
	34		South Shield	71.7	71.7	0.9	24.2	38.3	26.4	11.6
	35		North Shield							
	35		South Shield	68.9	68.9	0.9	25.3	41.8	26.4	11.7
	36		North Shield							
	36		South Shield	69.1	69.1	0.8	28.4	47.6	26.1	10.9
	37		North Shield							
	37		South Shield	74.4	74.4	0.9	24.1	41.9	26.6	11.4
	38		North Shield							
	38		South Shield	71.3	71.3	1.0	24.0	52.8	27.0	11.4
	39		North Shield							
	39		South Shield	75.7	75.7	1.0	24.3	38.4	27.0	11.5
	40		North Shield							
	40		South Shield	74.5	74.5	0.9	28.4	37.6	26.4	12.1
	41		North Shield							
	41		South Shield	68.1	68.1	0.9	24.1	38.7	26.5	10.5
	42		North Shield							
	42		South Shield	75.6	75.6	0.9	24.1	52.3	26.8	11.1
	43		North Shield							
	43		South Shield	73.7	73.7	0.9	24.0	37.4	26.7	11.3
	44		North Shield							
	44		South Shield	75.4	75.4	0.9	24.1	36.7	26.9	11.1
	45		North Shield							
	45		South Shield	74.6	74.6	0.9	24.2	38.9	26.4	11.4
	46		North Shield							
	46		South Shield	75.0	75.0	0.9	24.2	43.6	26.6	11.7

Table C-21. Test 21 north and south shield pressure-time values for sheep numbers 692 and 693.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	47		North Shield							
	47		South Shield	74.1	74.1	0.9	28.6	58.9	26.7	10.9
	48		North Shield							
	48		South Shield	74.0	74.0	1.0	28.4	44.1	26.3	10.2
	49		North Shield							
	49		South Shield	77.6	77.6	0.9	24.1	43.8	26.6	12.7
	50		North Shield							
	50		South Shield							
Mean				72.8	71.7	0.9	25.8	42.3	26.3	11.4
SD				2.5	7.8	0.1	2.2	5.8	0.4	0.6

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-22. Test 22 north and south shield pressure-time values for sheep numbers 694 and 695.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/29/96	1	90	North Shield	63.4	63.4	1.2	41.3	59.8	28.5	11.5
	1		South Shield	64.4	64.4	1.1	37.8	44.2	26.9	11.5
	3		North Shield	67.9	67.9	1.1	52.2	67.8	28.9	12.2
	3		South Shield	73.6	73.6	1.2	30.1	54.3	27.2	11.6
	2		North Shield	60.9	60.9	1.1	52.9	78.8	28.3	11.0
	2		South Shield	80.5	80.5	1.2	28.2	53.7	26.7	10.7
	4		North Shield	66.9	66.9	1.3	48.6	73.2	29.1	11.9
	4		South Shield	74.0	74.0	1.1	28.5	43.8	26.7	11.2
	5		North Shield	61.5	61.5	1.0	52.8	68.8	28.8	11.3
	5		South Shield	71.9	71.9	1.1	25.4	53.4	27.2	11.3
	6		North Shield	68.3	68.3	1.2	54.6	68.5	29.4	12.1
	6		South Shield	80.0	80.0	1.1	28.5	51.3	27.2	11.4
	7		North Shield	56.8	56.8	1.1	51.4	75.5	28.6	10.9
	7		South Shield	80.3	80.3	1.0	28.4	41.8	26.9	11.3
	8		North Shield	62.0	59.5	1.1	43.1	66.2	29.1	11.2
	8		South Shield	79.8	79.8	1.0	28.2	44.1	27.4	11.7
	9		North Shield	61.8	61.8	1.1	37.4	69.1	27.9	11.9
	9		South Shield	81.1	81.1	1.0	28.3	39.2	26.2	11.0
	10		North Shield	67.5	12.1	1.1	53.0	65.4	28.7	11.1
	10		South Shield	73.7	73.7	1.1	28.4	66.8	26.9	11.7
	11		North Shield	61.6	60.4	1.1	54.1	81.6	27.4	10.5
	11		South Shield	79.9	79.9	0.9	28.2	53.7	26.1	10.2
	12		North Shield	61.3	61.3	1.2	37.2	61.5	28.6	10.9
	12		South Shield	79.8	79.8	1.0	28.1	44.6	26.6	10.6
	13		North Shield	67.5	21.1	1.1	52.3	69.9	29.2	11.8
	13		South Shield	76.2	76.2	1.0	24.1	43.9	26.7	12.2
	14		North Shield	58.8	58.8	1.0	48.9	84.5	28.9	11.3
	14		South Shield	72.9	72.9	1.0	30.8	72.6	26.9	11.3
	15		North Shield	61.4	10.7	1.1	49.2	73.2	28.0	11.8
	15		South Shield	81.3	81.3	1.0	23.8	38.7	26.9	11.6
	16		North Shield	59.2	59.2	1.3	45.5	71.5	28.5	10.9
	16		South Shield	69.1	69.1	0.9	28.4	46.3	26.2	10.2
	17		North Shield	65.6	19.2	1.1	52.9	71.0	29.0	12.5
	17		South Shield	72.9	72.9	1.1	32.8	50.0	26.6	10.3
	18		North Shield	61.7	9.9	1.0	52.9	100.0	27.8	10.7
	18		South Shield	71.5	11.4	0.9	34.6	40.1	26.6	10.5
	19		North Shield	65.6	11.9	1.1	50.4	72.3	28.3	10.8
	19		South Shield	74.5	74.5	0.9	32.9	63.0	26.0	11.2
	20		North Shield	62.2	62.2	1.2	44.4	64.7	28.5	12.7
	20		South Shield	80.1	80.1	0.9	25.3	45.6	26.7	10.6
	21		North Shield	64.4	64.4	1.1	48.8	75.6	28.7	12.7
	21		South Shield	83.2	83.2	0.9	28.3	39.2	26.1	10.3
	22		North Shield	56.5	56.5	1.2	37.5	88.5	28.5	12.1
	22		South Shield	75.6	75.6	0.9	23.6	37.5	26.7	10.5
	23		North Shield	63.9	63.9	1.1	48.8	59.5	28.1	12.0
	23		South Shield	81.9	81.9	0.9	24.2	45.8	26.2	10.2

Table C-22. Test 22 north and south shield pressure-time values for sheep numbers 694 and 695.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	24		North Shield	56.9	56.9	1.0	40.9	69.0	27.3	10.3
	24		South Shield	63.3	63.3	0.9	37.0	70.8	25.6	10.4
	25		North Shield	65.7	6.6	1.1	49.1	65.1	29.1	11.7
	25		South Shield	78.3	78.3	0.9	28.4	43.3	26.8	10.9
	26		North Shield	64.5	64.5	1.0	36.4	69.0	28.3	13.0
	26		South Shield	70.2	70.2	1.0	28.3	52.1	26.8	11.1
	27		North Shield	64.6	15.2	1.1	34.9	71.9	28.3	11.1
	27		South Shield	79.9	17.2	1.0	29.9	50.5	26.2	11.8
	28		North Shield	59.0	59.0	1.1	50.8	98.9	28.0	11.1
	28		South Shield	72.5	72.5	1.0	29.9	67.9	26.0	11.8
	29		North Shield	67.6	67.6	1.0	43.8	64.4	28.3	10.7
	29		South Shield	75.0	75.0	0.9	32.9	60.7	26.6	11.7
	30		North Shield	62.1	62.1	1.2	45.3	61.6	28.3	11.7
	30		South Shield	71.8	71.8	0.9	24.0	60.1	27.1	10.9
	31		North Shield	59.7	22.9	1.0	52.6	60.9	27.9	11.1
	31		South Shield	72.4	14.4	0.9	29.2	52.5	26.7	12.0
	32		North Shield	61.5	61.5	1.0	44.4	63.7	28.2	11.1
	32		South Shield	70.2	70.2	0.9	28.4	45.6	26.7	11.7
	33		North Shield	62.3	62.3	1.1	45.2	79.6	28.3	12.0
	33		South Shield	73.5	73.5	1.0	24.8	39.3	26.4	11.0
	34		North Shield	59.7	35.6	1.1	44.9	72.9	28.0	10.7
	34		South Shield	72.0	18.3	0.9	32.1	45.7	27.0	10.5
	35		North Shield	59.6	59.6	1.1	37.2	68.8	29.0	11.2
	35		South Shield	72.5	72.5	0.9	28.3	53.8	26.0	12.1
	36		North Shield	66.9	66.9	1.3	44.2	87.5	29.2	12.9
	36		South Shield	82.8	82.8	0.9	25.3	37.5	27.7	11.1
	37		North Shield	63.4	9.2	1.1	48.7	86.0	28.5	11.8
	37		South Shield	77.9	77.9	0.9	25.3	62.7	26.9	11.9
	38		North Shield	61.5	61.5	1.1	37.5	71.4	28.4	10.8
	38		South Shield	77.5	77.5	0.9	25.3	68.5	26.3	11.8
	39		North Shield	65.8	7.9	1.1	48.3	53.3	28.3	12.0
	39		South Shield	78.0	78.0	0.9	22.7	43.9	26.9	10.5
	40		North Shield	62.3	62.3	1.1	41.2	106.1	28.9	11.0
	40		South Shield	77.7	77.7	1.0	25.4	39.4	26.8	11.4
	41		North Shield	64.4	64.4	1.2	49.0	55.4	29.1	11.9
	41		South Shield	76.1	76.1	1.0	23.7	42.4	26.8	11.0
	42		North Shield	64.5	18.1	1.1	43.8	68.9	28.7	12.4
	42		South Shield	80.1	14.2	1.0	36.8	47.3	27.1	10.9
	43		North Shield	59.7	59.7	1.1	51.4	73.7	28.5	10.9
	43		South Shield	77.7	77.7	1.0	25.4	48.8	26.4	10.4
	44		North Shield	77.7	77.7	0.5	20.6	48.3	2.3	12.1
	44		South Shield	78.3	12.9	1.0	26.6	38.5	27.0	10.7
	45		North Shield	62.7	62.7	1.1	36.9	61.2	29.2	11.2
	45		South Shield	75.0	75.0	0.9	28.4	39.4	26.5	10.7
	46		North Shield	68.3	68.3	1.1	53.0	78.0	28.6	12.0
	46		South Shield	71.0	71.0	0.9	25.4	39.2	27.2	10.5

Table C-22. Test 22 north and south shield pressure-time values for sheep numbers 694 and 695.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	47		North Shield	63.2	63.2	1.2	24.0	72.5	29.7	12.4
	47		South Shield	78.5	78.5	0.9	23.9	44.0	27.0	11.4
	48		North Shield	62.6	62.6	1.1	41.4	63.0	28.2	12.4
	48		South Shield	78.7	78.7	1.0	28.1	44.0	26.5	11.5
	49		North Shield	60.9	4.8	1.2	38.0	72.5	30.1	13.9
	49		South Shield	74.0	74.0	1.0	23.9	39.0	26.3	11.7
	50		North Shield	62.7	4.8	1.1	47.3	65.2	29.3	11.6
	50		South Shield	77.7	77.7	0.9	22.8	40.9	26.5	10.2
Mean				69.5	58.3	1.0	36.6	60.1	27.4	11.4
SD				7.6	24.1	0.1	10.4	15.5	2.7	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-23. Test 23 north and south shield pressure-time values for sheep numbers 696 and 697.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
10/31/96	1	90	North Shield	69.3	69.3	1.1	47.2	67.1	27.9	11.8
	1		South Shield	69.4	69.4	1.0	32.1	38.3	26.4	12.1
	2		North Shield	60.8	60.8	1.1	43.6	65.1	27.9	12.4
	2		South Shield	73.4	73.4	1.0	28.4	61.7	26.1	13.2
	3		North Shield	66.9	66.9	1.1	24.0	63.1	27.4	10.5
	3		South Shield	71.0	71.0	0.9	34.9	38.7	26.4	10.4
	4		North Shield	59.9	35.2	1.1	44.9	82.9	27.0	11.4
	4		South Shield	68.1	49.5	1.0	32.8	70.7	26.3	11.3
	5		North Shield	60.9	60.9	1.1	50.8	66.7	27.9	11.6
	5		South Shield	74.5	74.5	1.0	35.8	54.3	26.1	11.4
	6		North Shield	65.7	65.7	1.1	47.9	54.7	27.8	12.2
	6		South Shield	70.6	70.6	1.0	28.5	67.9	26.4	11.9
	7		North Shield	66.5	66.5	1.0	53.6	68.2	27.8	12.2
	7		South Shield	66.6	66.6	1.0	28.4	92.4	25.8	11.4
	8		North Shield	68.2	68.2	1.0	39.7	54.3	27.1	12.0
	8		South Shield	69.2	69.2	1.0	28.4	39.7	25.4	11.1
	9		North Shield	65.7	65.7	1.1	45.2	53.4	27.2	11.1
	9		South Shield	65.4	65.4	1.0	31.8	57.1	26.0	11.1
	10		North Shield	63.4	63.4	1.0	28.0	89.3	27.1	11.3
	10		South Shield	70.7	70.7	0.9	28.4	48.2	26.2	11.0
	11		North Shield	63.1	63.1	1.2	44.5	71.8	27.9	13.0
	11		South Shield	68.9	68.9	1.0	28.5	64.2	26.0	11.0
	12		North Shield	90.5	90.5	0.0	7.1	21.7	0.9	10.4
	12		South Shield	75.8	75.8	0.0	9.4	21.8	0.8	11.5
	13		North Shield	68.2	13.9	1.0	40.3	75.9	27.2	11.4
	13		South Shield	69.1	69.1	0.9	28.4	44.2	25.7	10.8
	14		North Shield	65.3	64.1	1.0	37.1	72.3	27.7	11.9
	14		South Shield	65.3	65.3	0.9	28.4	41.3	26.2	11.5
	15		North Shield	64.6	9.8	1.0	40.1	74.6	27.2	11.7
	15		South Shield	67.6	67.6	0.9	28.3	62.3	26.0	11.6
	16		North Shield	65.8	65.8	1.2	47.0	101.6	28.1	11.0
	16		South Shield	70.0	70.0	1.0	32.2	43.2	26.5	10.4
	17		North Shield	63.3	63.3	1.0	40.2	87.6	27.7	10.9
	17		South Shield	70.2	70.2	0.9	28.5	64.6	26.0	11.2
	18		North Shield	62.5	62.5	1.1	55.7	100.6	27.3	10.3
	18		South Shield	75.4	75.4	0.9	27.6	44.3	26.4	11.3
	19		North Shield	93.6	65.9	2.4	39.3	93.8	28.8	10.6
	19		South Shield	64.4	64.4	1.0	29.4	42.4	25.7	10.6
	20		North Shield	85.0	85.0	0.0	8.1	27.5	0.9	11.9
	20		South Shield	68.5	43.0	0.9	38.8	69.4	25.7	11.8
	21		North Shield	63.9	63.9	1.3	48.1	86.3	27.8	15.3
	21		South Shield	69.9	69.9	1.0	28.6	38.7	25.8	11.3
	22		North Shield	65.7	65.7	0.8	40.3	63.6	26.9	10.7
	22		South Shield	72.5	72.5	0.8	25.2	40.3	25.8	10.1
	23		North Shield	63.9	63.9	1.0	51.8	60.1	27.2	11.3
	23		South Shield	69.7	69.7	0.9	35.2	85.5	26.1	10.0

Table C-23. Test 23 north and south shield pressure-time values for sheep numbers 696 and 697.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	24		North Shield	69.3	69.3	1.1	49.5	74.4	27.8	14.3
	24		South Shield	68.1	68.1	1.0	28.5	64.3	26.5	10.8
	25		North Shield	72.3	72.3	1.0	29.1	71.2	28.0	11.6
	25		South Shield	67.2	67.2	1.0	34.8	56.9	26.0	11.1
	26		North Shield	68.2	68.2	1.0	30.5	75.3	28.2	12.2
	26		South Shield	69.9	69.9	0.9	28.5	44.3	26.0	10.4
	27		North Shield	67.0	67.0	1.2	45.3	71.1	28.4	12.4
	27		South Shield	70.6	70.6	1.0	28.5	81.0	26.3	10.2
	28		North Shield	60.3	60.3	1.2	53.5	68.3	28.5	12.3
	28		South Shield	69.8	69.8	0.9	28.3	54.1	26.5	10.1
	29		North Shield	71.2	71.2	0.0	17.5	33.8	0.9	10.8
	29		South Shield	83.1	83.1	0.0	7.7	19.6	1.0	10.1
	30		North Shield	64.5	64.5	1.0	43.0	67.2	28.1	11.0
	30		South Shield	75.4	75.4	0.9	24.1	39.7	26.3	11.3
	31		North Shield	64.4	64.4	1.0	32.8	82.6	27.6	10.8
	31		South Shield	64.5	64.5	0.9	24.9	64.1	25.9	9.9
	32		North Shield	59.7	59.7	1.0	47.7	83.7	28.2	11.5
	32		South Shield	70.3	17.1	0.9	28.5	62.1	26.0	9.9
	33		North Shield	64.5	64.5	1.0	43.7	85.8	28.2	12.2
	33		South Shield	69.6	69.6	1.1	24.8	68.8	26.7	10.2
	34		North Shield	61.5	61.5	1.0	46.5	80.3	28.0	11.0
	34		South Shield	66.0	66.0	1.0	28.4	39.1	26.9	11.2
	35		North Shield	111.8	111.8	0.0	5.2	15.3	1.1	11.4
	35		South Shield	69.7	53.8	1.0	30.9	68.1	26.5	10.2
	36		North Shield	62.9	15.3	1.0	51.9	78.5	27.3	11.1
	36		South Shield	66.0	66.0	1.0	28.1	69.3	26.2	10.3
	37		North Shield	65.5	8.9	1.0	43.9	82.1	28.9	11.2
	37		South Shield	73.4	73.4	1.1	28.5	56.9	26.4	11.5
	38		North Shield	64.7	64.7	1.1	41.1	80.8	28.0	11.9
	38		South Shield	69.6	69.6	1.1	24.9	54.0	26.9	11.2
	39		North Shield	63.9	63.9	1.1	36.0	72.5	27.8	10.6
	39		South Shield	62.3	62.3	1.1	31.8	73.2	26.4	10.2
	40		North Shield	67.6	67.6	1.0	40.7	83.3	27.4	13.2
	40		South Shield	68.6	68.6	1.0	28.6	54.9	26.6	10.2
	41		North Shield	64.4	11.4	1.0	39.9	56.7	27.7	13.0
	41		South Shield	68.6	68.6	1.0	28.2	53.9	26.4	10.5
	42		North Shield	63.8	9.5	1.2	40.9	74.7	27.9	12.3
	42		South Shield	70.2	70.2	1.0	28.4	54.0	26.3	11.4
	43		North Shield	61.3	61.3	1.0	47.0	111.1	27.9	10.8
	43		South Shield	73.0	73.0	1.1	27.5	55.0	27.0	11.2
	44		North Shield	62.0	62.0	1.0	48.5	62.3	27.5	11.4
	44		South Shield	65.9	65.9	1.1	36.2	67.8	27.1	10.4
	45		North Shield	65.1	65.1	1.0	47.1	80.7	27.6	11.2
	45		South Shield	65.4	65.4	1.0	37.0	62.5	26.6	10.4
	46		North Shield	58.5	58.5	1.0	44.1	116.4	27.6	10.6
	46		South Shield	67.8	67.8	1.0	28.4	62.0	26.5	11.8

Table C-23. Test 23 north and south shield pressure-time values for sheep numbers 696 and 697.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	47		North Shield	59.7	8.5	1.0	43.9	73.5	27.9	12.8
	47		South Shield	68.9	68.9	1.1	24.0	42.4	26.5	10.9
	48		North Shield	69.3	69.3	1.1	30.9	63.6	27.8	11.3
	48		South Shield	71.8	71.8	1.1	25.5	41.1	26.5	11.2
	49		North Shield	60.3	60.3	1.0	41.1	83.1	27.0	10.9
	49		South Shield	71.4	71.4	1.0	24.1	54.1	25.8	10.5
	50		North Shield	64.9	64.9	1.2	36.4	71.6	28.6	13.5
	50		South Shield	72.9	72.9	1.0	28.4	66.5	26.5	11.0
Mean				68.4	63.0	1.0	34.3	63.6	25.4	11.3
SD				7.2	17.2	0.3	10.6	19.2	6.3	0.9

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-24. Test 24 north and south shield pressure-time values for sheep numbers 698 and 699.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
11/5/96	1	127	North Shield	84.5	84.5	1.2	22.9	61.7	32.2	12.3
	1		South Shield	81.8	81.8	1.2	23.3	72.8	32.5	12.7
	2		North Shield	78.6	78.6	1.0	36.3	42.8	31.6	12.2
	2		South Shield	84.7	84.7	1.5	24.3	67.7	33.0	12.8
	3		North Shield	80.2	80.2	1.1	23.9	48.3	32.2	12.4
	3		South Shield	87.7	87.7	1.0	27.6	62.0	30.8	12.0
	4		North Shield	90.4	90.4	1.1	25.2	42.9	33.2	13.1
	4		South Shield	88.5	88.5	1.4	23.0	40.3	32.1	12.1
	5		North Shield	76.4	76.4	1.0	35.7	45.7	33.0	12.9
	5		South Shield	79.8	79.8	1.1	27.5	54.5	32.2	12.5
	6		North Shield	79.0	79.0	1.1	22.6	45.5	32.5	12.6
	6		South Shield	87.8	87.8	1.1	28.1	53.6	32.9	12.7
Mean				83.3	83.3	1.1	26.7	53.2	32.4	12.5
SD				4.6	4.6	0.2	4.8	10.7	0.7	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-25. Test 25 north and south shield pressure-time values for sheep numbers 700 and 701.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
11/7/96	1	127	North Shield	87.4	87.4	1.0	23.1	52.8	35.3	13.6
	1		South Shield	81.8	81.8	1.0	23.1	44.7	31.4	13.5
	2		North Shield	79.5	79.5	1.1	33.2	55.3	35.2	13.7
	2		South Shield	72.8	72.8	1.1	31.9	75.8	32.5	12.9
	3		North Shield	74.8	10.3	1.1	24.0	63.4	34.4	13.5
	3		South Shield	78.8	78.8	1.1	30.9	56.1	32.0	12.6
	4		North Shield	83.2	83.2	1.0	28.9	43.9	33.9	13.0
	4		South Shield	74.8	74.8	1.1	29.7	48.4	32.0	13.3
	5		North Shield	77.8	76.0	1.1	37.3	62.2	34.2	13.1
	5		South Shield	75.7	75.7	1.1	30.9	48.8	31.8	12.7
	6		North Shield	82.1	82.1	1.1	33.3	74.9	34.7	13.4
	6		South Shield	76.7	76.7	1.1	32.9	75.7	32.5	12.5
Mean				78.8	73.3	1.1	29.9	58.5	33.3	13.1
SD				4.2	20.3	0.0	4.5	11.9	1.4	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-26. Test 26 north and south shield pressure-time values for sheep numbers 702 and 703.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
11/12/96	1	127	North Shield	77.1	13.9	1.1	34.4	81.7	31.4	12.1
	1		South Shield	80.4	80.4	1.0	28.3	53.5	31.7	14.7
	2		North Shield	74.7	10.2	1.1	44.7	76.2	33.4	12.7
	2		South Shield	84.0	84.0	1.0	28.0	54.2	31.9	13.7
	3		North Shield	73.3	11.2	1.1	42.3	84.3	33.1	12.6
	3		South Shield	83.0	83.0	1.2	27.5	80.8	32.9	12.9
	4		North Shield	78.3	78.3	1.1	40.8	71.5	32.8	12.6
	4		South Shield	86.7	86.7	1.1	23.2	46.2	32.4	12.7
	5		North Shield	77.9	77.9	1.1	41.5	69.6	32.9	12.5
	5		South Shield	86.7	86.7	1.1	27.7	43.2	32.1	12.7
	6		North Shield	79.7	79.7	1.2	42.2	45.4	33.5	12.8
	6		South Shield	87.3	87.3	1.2	28.4	53.7	32.7	12.7
Mean				80.8	65.0	1.1	34.1	63.3	32.6	12.9
SD				4.8	32.2	0.1	7.7	15.5	0.7	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-27. Test 27 north and south shield pressure-time values for sheep numbers 704 and 705.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
11/14/96	1	127	North Shield	74.7	74.7	1.1	57.9		32.8	12.6
	1		South Shield	79.8	79.8	1.1	41.7	69.7	32.3	13.1
	2		North Shield	67.7	67.7	1.2	42.4	61.6	32.8	12.7
	2		South Shield	84.6	84.6	1.1	25.5	68.1	31.8	12.2
	3		North Shield	76.3	76.3	1.0	29.4	66.2	32.6	12.6
	3		South Shield	82.2	82.2	1.1	30.8	59.3	32.0	12.3
	4		North Shield	77.2	77.2	1.0	47.3	66.3	32.7	12.7
	4		South Shield	82.2	82.2	1.0	33.9	58.1	31.3	12.5
	5		North Shield	67.5	67.5	1.1	36.4	66.0	33.0	12.8
	5		South Shield	82.6	82.6	1.1	27.7	71.7	31.1	12.7
	6		North Shield	70.5	69.3	1.1	36.4	66.0	32.8	12.7
	6		South Shield	77.4	77.4	1.1	28.5	54.8	31.2	11.9
Mean				76.9	76.8	1.1	36.5	64.3	32.2	12.6
SD				5.9	6.0	0.1	9.5	5.2	0.7	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-28. Test 28 north and south shield pressure-time values for sheep numbers 706 and 707.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
11/19/96	1	127	North Shield	68.3	68.3	0.9	40.7	61.7	31.8	12.3
	1		South Shield	93.6	93.6	1.2	27.5	85.1	32.6	14.7
	2		North Shield	77.2	77.2	1.1	36.2	48.6	33.9	12.9
	2		South Shield	94.7	94.7	1.2	27.9	72.2	32.7	13.7
	3		North Shield	69.8	69.8	1.1	42.4	153.7	33.6	12.9
	3		South Shield	92.3	92.3	1.3	30.5	43.4	31.9	13.6
	4		North Shield	71.1	71.1	1.2	37.3	51.4	33.9	12.8
	4		South Shield	92.6	92.6	1.1	23.3	53.4	32.1	14.1
	5		North Shield	75.3	75.3	1.0	37.4	45.3	33.8	13.0
	5		South Shield	86.2	86.2	1.1	23.5	57.8	32.6	12.7
	6		North Shield	77.2	77.2	1.0	37.1	51.5	33.7	12.8
	6		South Shield	91.4	91.4	1.2	27.9	82.8	31.5	13.6
Mean				82.5	82.5	1.1	32.6	67.2	32.8	13.2
SD				10.3	10.3	0.1	6.6	30.6	0.9	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-29. Test 29 north and south shield pressure-time values for sheep numbers 708 and 709.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
11/21/96	1	127	North Shield	63.3	63.3	1.1	22.5	38.7	28.7	10.7
	1		South Shield	82.1	82.1	1.1	36.5	87.2	32.0	14.0
	2		North Shield	60.9	57.2	1.1	22.4	42.5	28.1	10.6
	2		South Shield	77.7	77.7	1.1	29.1	75.6	31.0	14.3
	3		North Shield	60.0	60.0	1.0	36.2	42.7	28.1	10.5
	3		South Shield	81.9	81.9	1.1	27.9	51.9	30.7	14.2
	4		North Shield	63.7	61.3	1.1	32.8	43.9	28.3	10.7
	4		South Shield	84.1	84.1	1.1	36.3	68.5	32.0	14.0
	5		North Shield	59.4	56.9	1.1	32.8	62.6	27.0	10.1
	5		South Shield	82.1	82.1	1.1	36.5	82.4	31.4	14.1
	6		North Shield	63.3	60.3	1.1	36.2	43.8	27.3	10.4
	6		South Shield	80.5	80.5	1.1	36.6	80.4	32.0	12.5
	7		North Shield	62.9	62.9	1.1	36.3	45.4	27.5	10.3
	7		South Shield	78.7	78.7	1.0	36.5	54.2	30.6	14.4
	8		North Shield	62.0	62.0	1.0	27.6	41.1	28.0	10.6
	8		South Shield	75.9	75.9	1.1	41.7	109.8	31.2	13.8
	9		North Shield	62.5	62.5	1.0	36.4	58.3	28.4	10.7
	9		South Shield	82.2	82.2	1.0	36.4	93.5	31.5	14.2
	10		North Shield	66.9	23.5	1.0	42.1	45.8	28.5	10.7
	10		South Shield	86.7	34.6	1.4	38.3	79.9	33.1	13.0
	11		North Shield	62.9	62.9	1.0	36.5	63.6	28.1	10.5
	11		South Shield	76.6	76.6	1.0	27.9	80.6	30.4	14.1
	12		North Shield	65.8	63.4	1.0	36.7	40.1	28.4	10.6
	12		South Shield	81.4	81.4	1.0	28.2	54.3	30.4	13.3
	13		North Shield	64.2	61.2	1.0	23.1	43.8	27.9	10.5
	13		South Shield	84.0	84.0	1.1	25.5	53.6	30.9	13.1
	14		North Shield	65.2	64.6	1.1	36.8	44.0	28.3	10.7
	14		South Shield	75.5	75.5	1.0	36.4	52.1	29.8	13.0
	15		North Shield	67.4	64.4	1.0	36.7	44.0	28.6	10.8
	15		South Shield	86.5	86.5	1.5	42.4	80.6	34.3	13.8
	16		North Shield	66.1	62.4	1.0	36.6	43.9	27.3	10.5
	16		South Shield	79.4	79.4	1.1	31.8	69.6	31.8	12.7
	17		North Shield	65.3	61.1	1.0	22.4	43.8	27.7	10.5
	17		South Shield	83.2	83.2	1.0	28.9	68.7	31.8	13.8
	18		North Shield	62.2	58.6	1.1	22.4	44.1	27.5	10.3
	18		South Shield	83.0	83.0	1.1	27.9	83.2	31.2	14.1
	19		North Shield	66.0	63.0	1.1	22.1	43.8	28.0	10.6
	19		South Shield	81.3	81.3	1.5	43.3	80.4	32.5	13.3
	20		North Shield	61.9	58.9	1.1	22.5	43.9	28.2	10.7
	20		South Shield	81.2	81.2	1.1	30.4	68.3	31.0	14.6
	21		North Shield	62.3	61.1	1.0	37.3	43.8	28.4	10.8
	21		South Shield	79.9	79.9	1.1	28.5	43.9	30.6	14.0
	22		North Shield	65.3	62.9	1.0	22.3	41.5	27.7	10.5
	22		South Shield	78.1	78.1	1.1	28.5	175.0	30.8	13.8
	23		North Shield	69.3	64.5	1.0	22.4	43.3	28.3	10.7
	23		South Shield	84.0	84.0	1.0	27.9	54.6	30.7	12.2

Table C-29. Test 29 north and south shield pressure-time values for sheep numbers 708 and 709.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	24		North Shield	63.1	62.5	1.1	22.5	43.8	28.6	10.8
	24		South Shield	82.1	82.1	1.1	28.4	92.6	31.8	14.5
	25		North Shield	66.4	64.0	1.2	22.2	44.0	29.9	11.1
	25		South Shield	82.8	82.8	1.2	39.4	85.5	31.3	16.6
	26		North Shield	61.9	58.9	1.0	37.4	48.7	28.1	10.7
	26		South Shield	82.4	82.4	1.2	43.2	80.6	31.9	14.8
	27		North Shield	65.8	65.2	1.0	37.1	47.6	28.4	10.7
	27		South Shield	87.6	87.6	1.1	24.7	68.3	31.1	13.6
	28		North Shield	65.6	61.4	1.0	22.4	48.6	28.8	10.9
	28		South Shield	83.1	83.1	1.2	42.4	68.2	31.5	14.4
	29		North Shield	64.5	59.1	1.0	22.4	48.8	28.3	10.6
	29		South Shield	82.4	82.4	1.0	25.4	73.0	30.2	15.2
	30		North Shield	68.2	63.4	1.0	22.4	44.0	28.3	10.7
	30		South Shield	84.0	84.0	1.0	37.9	69.8	29.7	15.2
	31		North Shield	66.9	66.3	0.9	23.1	38.7	28.7	10.7
	31		South Shield	87.5	87.5	1.4	43.3	72.3	33.0	13.3
	32		North Shield	65.4	61.2	1.0	22.5	38.4	28.7	11.0
	32		South Shield	85.6	85.6	1.5	42.5	52.1	33.2	14.4
	33		North Shield	70.5	65.7	1.0	22.6	38.5	28.3	10.8
	33		South Shield	82.3	82.3	2.1	37.2	68.4	34.8	14.3
	34		North Shield	68.1	59.7	1.0	22.2	45.0	28.7	11.0
	34		South Shield	83.4	83.4	1.0	36.4	68.3	30.6	15.4
	35		North Shield	66.4	65.2	1.0	29.0	56.3	28.1	10.6
	35		South Shield	86.2	86.2	1.3	48.0	73.2	31.2	14.5
	36		North Shield	66.4	60.4	1.3	37.0	49.6	28.2	10.7
	36		South Shield	82.5	82.5	1.2	42.3	68.5	31.4	13.1
	37		North Shield	71.3	71.3	1.0	23.1	43.9	29.6	11.3
	37		South Shield	88.3	88.3	1.4	43.3	51.8	32.6	14.3
	38		North Shield	68.5	63.1	0.9	23.2	44.0	28.3	10.9
	38		South Shield	78.8	78.8	1.0	36.4	68.7	29.9	13.7
	39		North Shield	59.7	55.4	1.0	88.7	675.4	28.3	10.7
	39		South Shield	85.9	85.9	1.4	39.6	73.1	32.1	13.4
	40		North Shield	69.4	65.2	2.6	37.4	104.0	31.1	11.0
	40		South Shield	79.8	79.8	1.1	41.6	72.7	30.4	15.3
	41		North Shield	66.7	62.5	1.0	22.2	50.4	28.4	10.7
	41		South Shield	83.4	83.4	1.4	37.9	68.0	32.8	14.8
	42		North Shield	69.3	65.6	0.9	22.3	44.1	28.6	10.8
	42		South Shield	78.7	78.7	1.5	44.1	87.0	31.5	13.1
	43		North Shield	64.9	64.9	1.0	38.4	50.0	28.9	10.9
	43		South Shield	83.5	83.5	1.5	66.1	94.0	33.8	13.8
	44		North Shield	72.4	72.4	1.0	22.2	43.9	29.1	10.8
	44		South Shield	87.3	87.3	1.4	37.2	52.2	32.0	14.7
	45		North Shield	67.2	64.2	1.8	37.5	45.4	30.1	11.0
	45		South Shield	79.8	79.8	1.2	36.4	73.7	31.3	13.2
	46		North Shield	70.5	67.5	1.0	23.0	43.9	29.2	11.0
	46		South Shield	76.3	76.3	1.1	36.4	53.0	30.8	12.7

Table C-29. Test 29 north and south shield pressure-time values for sheep numbers 708 and 709.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	47		North Shield	63.3	61.5	1.0	22.3	47.3	28.5	10.7
	47		South Shield	88.2	88.2	1.5	37.8	77.3	34.3	13.9
	48		North Shield	66.9	50.0	1.0	37.8	54.1	28.9	10.8
	48		South Shield	88.8	70.2	1.2	42.5	72.8	32.1	13.4
	49		North Shield	65.3	64.7	1.0	22.5	47.4	28.9	11.1
	49		South Shield	82.8	82.8	1.5	36.3	91.6	33.2	13.9
	50		North Shield	67.6	65.2	1.2	22.3	53.4	29.0	10.8
	50		South Shield	84.5	84.5	1.4	28.0	67.9	32.7	13.9
Mean				74.0	71.4	1.1	33.1	66.8	30.0	12.3
SD				9.2	12.0	0.2	9.9	64.8	1.9	1.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-30. Test 30 north and south shield pressure-time values for sheep numbers 712 and 713.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
12/3/96	2	127	North Shield	83.8	83.8	1.1	23.3	49.1	35.2	13.5
	2		South Shield	99.0	99.0	1.0	22.8	46.0	33.2	12.9
	3		North Shield	80.6	80.6	1.4	32.8	52.4	36.8	13.8
	3		South Shield	93.3	93.3	1.0	23.2	41.5	32.3	12.5
	4		North Shield	85.0	85.0	1.4	36.9	49.1	35.1	13.2
	4		South Shield	94.5	94.5	1.1	23.1	49.3	32.1	12.5
	5		North Shield	86.8	86.8	1.1	32.8	43.6	34.9	13.3
	5		South Shield	85.5	85.5	1.1	23.3	52.3	32.4	12.4
	6		North Shield	84.5	84.5	1.0	23.0	65.1	34.6	13.1
	6		South Shield	86.6	86.6	1.4	23.9	48.3	33.5	12.7
	7		North Shield	94.7	94.7	1.1	23.1	49.1	33.8	12.8
	7		South Shield	86.0	84.9	1.1	23.2	49.1	33.1	12.6
	8		North Shield	85.6	85.6	1.1	32.8	46.8	34.8	13.2
	8		South Shield	82.1	82.1	1.1	24.1	48.7	32.9	12.6
	9		North Shield	83.8	83.8	1.0	22.7	56.1	34.8	13.2
	9		South Shield	83.8	83.8	1.1	23.4	49.5	33.3	12.8
	10		North Shield	88.5	88.5	1.1	32.7	43.5	34.6	13.2
	10		South Shield	93.9	93.9	1.2	22.8	49.3	32.8	12.6
	11		North Shield	86.6	86.6	1.1	32.8	56.1	34.9	13.1
	11		South Shield	90.6	90.6	1.2	23.2	49.4	33.6	12.8
	12		North Shield	92.3	92.3	1.0	32.8	46.8	34.6	13.2
	12		South Shield	90.6	90.6	1.1	22.7	49.5	33.3	12.6
	13		North Shield	79.8	79.8	1.1	37.0	43.9	34.5	12.9
	13		South Shield	94.1	94.1	1.1	23.2	48.7	32.7	12.5
	14		North Shield	78.1	78.1	1.0	22.7	44.0	33.8	12.7
	14		South Shield	90.6	90.6	1.2	23.3	54.7	31.6	12.2
	15		North Shield	88.8	88.8	1.1	22.7	47.5	34.3	12.9
	15		South Shield	90.0	90.0	1.2	22.7	58.4	33.3	12.7
	16		North Shield	83.5	83.5	1.0	24.0	49.2	34.7	13.1
	16		South Shield	97.3	97.3	1.3	22.7	58.1	33.0	12.5
	17		North Shield	84.5	84.5	1.0	23.0	50.8	34.5	13.0
	17		South Shield	96.7	96.7	1.1	23.3	66.4	32.7	12.7
	18		North Shield	80.1	80.1	1.0	22.7	44.1	34.1	13.0
	18		South Shield	90.6	90.6	1.1	25.9	51.0	31.9	12.4
	19		North Shield	85.1	85.1	1.0	23.0	49.1	34.2	13.0
	19		South Shield	86.0	86.0	1.3	22.9	58.0	31.8	12.2
	20		North Shield	88.5	88.5	1.1	22.6	43.6	34.7	13.0
	20		South Shield	86.1	86.1	1.1	33.0	74.3	32.2	12.4
	21		North Shield	85.1	85.1	1.1	22.8	44.2	34.4	13.1
	21		South Shield	88.3	88.3	1.1	33.5	52.8	32.5	12.4
	22		North Shield	80.6	80.6	1.5	32.8	55.3	35.2	13.1
	22		South Shield	87.1	87.1	1.1	22.9	52.8	33.1	12.6
	23		North Shield	0.1	0.1	0.0	0.0	0.0	0.0	0.1
	24		North Shield	77.9	77.9	1.1	32.8	55.5	34.6	13.1
	24		South Shield	92.2	92.2	1.0	22.7	61.2	32.8	12.7
	25		North Shield	87.3	87.3	1.0	23.0	43.3	34.2	12.9

Table C-30. Test 30 north and south shield pressure-time values for sheep numbers 712 and 713.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	25		South Shield	82.7	82.7	1.2	33.7	61.7	33.5	12.9
	26		North Shield	86.3	86.3	1.1	22.8	50.9	33.9	12.9
	26		South Shield	92.2	92.2	1.2	23.1	58.1	33.6	12.8
	27		North Shield	76.5	76.5	1.0	22.8	50.7	33.9	12.8
	27		South Shield	91.1	91.1	1.1	33.8	58.7	32.8	12.6
	28		North Shield	84.4	84.4	1.1	22.8	54.0	34.1	12.9
	28		South Shield	90.0	90.0	1.1	22.9	70.6	33.3	12.8
	29		North Shield	79.9	79.9	1.0	22.8	49.4	34.6	13.2
	29		South Shield	92.8	92.8	1.0	32.9	49.6	32.5	12.5
	30		North Shield	83.2	83.2	1.1	32.8	53.1	35.6	13.3
	30		South Shield	92.8	92.8	1.1	19.9	76.2	33.6	13.1
	31		North Shield	87.4	87.4	1.2	32.9	43.2	34.3	12.9
	31		South Shield	89.4	89.4	1.1	33.7	85.6	32.8	12.6
	32		North Shield	77.5	77.5	1.0	32.9	56.6	34.4	13.1
	32		South Shield	86.6	86.6	1.0	32.9	74.4	32.6	12.5
	33		North Shield	87.3	87.3	1.2	32.8	43.9	34.0	12.8
	33		South Shield	86.1	86.1	1.1	34.1	104.5	35.3	13.4
	34		North Shield	87.9	87.9	1.0	23.1	55.6	33.5	12.7
	34		South Shield	89.4	89.4	1.0	33.0	83.5	34.7	13.2
	35		North Shield	84.7	84.7	1.1	32.9	56.5	33.5	12.8
	35		South Shield	85.5	85.5	1.1	34.3	77.2	33.7	13.0
	36		North Shield	86.7	86.7	1.1	36.0	45.5	33.4	12.7
	36		South Shield	91.2	91.2	1.1	34.6	105.2	34.8	13.2
	37		North Shield	94.8	94.8	1.1	32.7	43.4	34.1	13.0
	37		South Shield	83.8	83.8	1.1	36.2	62.9	34.9	13.4
	38		North Shield	87.1	87.1	1.1	23.1	44.1	33.6	12.7
	38		South Shield	93.9	93.9	1.1	34.2	74.0	34.6	13.2
	39		North Shield	86.7	86.7	1.2	32.9	51.1	34.6	13.1
	39		South Shield	88.5	88.5	1.1	34.2	52.7	34.7	13.2
	40		North Shield	83.2	83.2	1.0	23.0	48.9	33.0	12.7
	40		South Shield	84.9	84.9	1.1	25.8	77.8	34.1	13.0
	41		North Shield	88.4	88.4	1.0	32.9	51.4	34.0	12.9
	41		South Shield	89.4	89.4	1.1	34.5	74.1	33.9	12.9
	42		North Shield	83.2	83.2	1.1	24.3	60.4	32.8	12.6
	42		South Shield	88.3	88.3	1.1	36.2	76.3	33.4	12.6
	43		North Shield	82.0	82.0	1.1	23.1	51.1	32.7	12.5
	43		South Shield	89.4	89.4	1.1	23.6	77.2	34.0	12.9
	44		North Shield	92.5	92.5	1.2	22.7	48.7	34.1	12.9
	44		South Shield	83.2	83.2	1.0	46.5	49.7	34.5	13.1
	45		North Shield	82.0	82.0	1.0	32.9	45.9	33.9	12.9
	45		South Shield	84.4	84.4	1.1	33.4	83.7	33.5	12.8
	46		North Shield	75.1	75.1	1.2	23.0	54.4	33.4	12.7
	46		South Shield	85.0	85.0	1.1	33.0	83.3	34.5	13.1
	47		North Shield	78.6	78.6	1.1	24.7	54.1	32.8	12.4
	47		South Shield	92.8	92.8	1.0	22.9	62.6	34.5	13.1
	48		North Shield	83.8	83.8	1.1	23.1	53.2	33.9	12.9

Table C-30. Test 30 north and south shield pressure-time values for sheep numbers 712 and 713.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	48		South Shield	88.9	88.9	1.1	46.6	85.8	34.2	13.1
	49		North Shield	88.8	88.8	1.0	23.2	59.8	33.4	12.9
	49		South Shield	87.2	87.2	1.0	32.8	90.1	34.2	13.2
	50		North Shield	94.9	94.9	1.0	23.2	44.0	33.1	12.7
	50		South Shield	91.1	91.1	1.1	33.0	73.7	34.8	13.3
	51		North Shield	79.9	79.9	1.0	33.5	45.5	32.7	12.4
	51		South Shield	90.6	90.6	1.1	32.3	83.9	33.7	12.9
Mean				86.2	86.2	1.1	27.8	56.8	33.5	12.7
SD				10.0	10.0	0.1	6.5	15.1	3.5	1.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-31. Test 31 north and south shield pressure-time values for sheep numbers 714 and 715.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
12/5/96	1	90	North Shield	60.3	60.3	0.9	24.6	55.1	28.9	11.9
	1		South Shield	76.8	76.8	1.1	32.7	43.4	26.6	10.0
	2		North Shield	69.0	69.0	0.9	24.1	57.9	28.8	11.4
	2		South Shield	76.9	76.9	1.0	23.9	47.2	26.4	10.0
	3		North Shield	68.9	68.9	0.9	24.5	49.6	28.5	11.6
	3		South Shield	74.6	74.6	1.0	23.9	77.8	26.5	10.0
	4		North Shield	66.0	66.0	1.0	32.8	56.1	28.2	10.9
	4		South Shield	74.6	74.6	1.0	24.0	47.6	25.9	9.8
	5		North Shield	74.2	74.2	1.1	23.9	62.4	29.3	11.4
	5		South Shield	76.3	76.3	1.2	22.8	82.0	27.7	10.4
	6		North Shield	69.0	69.0	1.0	22.6	51.5	28.4	10.9
	6		South Shield	73.6	73.6	1.1	25.0	61.0	26.9	10.1
	7		North Shield	67.9	67.9	1.0	24.5	75.2	28.5	11.1
	7		South Shield	71.8	71.8	1.2	24.2	73.8	26.3	9.9
	8		North Shield	72.4	72.4	1.0	24.4	64.0	28.8	11.1
	8		South Shield	77.3	77.3	1.1	25.9	77.1	26.2	9.9
	9		North Shield	72.4	72.4	1.1	23.9	63.2	28.5	10.8
	9		South Shield	79.6	79.6	1.1	33.1	56.7	26.5	10.6
	10		North Shield	70.0	70.0	1.0	24.4	57.9	28.7	11.1
	10		South Shield	74.1	74.1	1.1	24.1	77.7	26.8	10.1
	11		North Shield	62.6	62.6	1.0	24.4	55.4	28.2	11.0
	11		South Shield	76.8	76.8	1.1	23.9	48.3	25.8	9.9
	12		North Shield	72.4	72.4	1.0	24.5	61.7	28.8	11.3
	12		South Shield	71.9	71.9	1.0	26.1	92.0	26.7	10.3
	13		North Shield	71.6	71.6	1.0	24.4	72.5	28.5	10.9
	13		South Shield	70.7	70.7	1.0	34.0	78.7	26.2	9.9
	14		North Shield	66.0	66.0	1.1	24.5	57.2	28.1	11.4
	14		South Shield	74.6	74.6	1.1	21.5	116.3	26.3	10.0
	15		North Shield	71.2	71.2	1.0	24.4	57.3	28.7	11.4
	15		South Shield	74.6	74.6	1.0	33.1	93.0	26.5	10.1
	16		North Shield	67.0	67.0	1.0	22.8	63.9	28.8	11.0
	16		South Shield	75.7	75.7	1.0	19.9	92.2	26.5	10.1
	17		North Shield	62.6	62.6	1.0	23.4	63.9	28.4	11.4
	17		South Shield	74.6	74.6	1.0	19.8	92.3	26.1	9.9
	18		North Shield	70.1	70.1	1.0	26.1	56.3	28.7	11.0
	18		South Shield	79.5	79.5	1.0	22.9	53.5	26.3	10.1
	19		North Shield	65.9	65.9	1.0	23.8	72.4	28.3	10.9
	19		South Shield	70.8	70.8	1.0	34.0	81.6	26.2	9.9
	20		North Shield	74.0	74.0	1.0	24.4	76.1	28.4	10.9
	20		South Shield	67.4	67.4	1.0	29.7	97.6	26.5	10.2
	21		North Shield	63.0	63.0	1.0	39.2	56.4	27.9	10.7
	21		South Shield	67.5	67.5	1.1	32.1	125.7	26.0	10.0
	22		North Shield	65.4	65.4	1.0	24.5	48.8	28.7	10.9
	22		South Shield	71.8	71.8	1.0	45.5	93.0	26.7	10.1
	23		North Shield	73.5	73.5	1.0	39.1	54.2	28.9	11.0
	23		South Shield	74.6	74.6	1.0	22.6	120.7	27.2	10.3

Table C-31. Test 31 north and south shield pressure-time values for sheep numbers 714 and 715.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	24		North Shield	65.4	65.4	1.1	39.1	54.2	28.7	10.9
	24		South Shield	77.3	77.3	1.0	25.3	77.0	26.5	10.0
	25		North Shield	73.2	73.2	1.0	22.9	58.3	28.5	11.2
	25		South Shield	72.4	72.4	1.1	24.7	97.6	26.3	9.9
	26		North Shield	77.0	77.0	1.2	32.6	54.2	29.0	11.0
	26		South Shield	75.7	75.7	1.0	34.9	107.1	26.7	10.1
	27		North Shield	71.7	71.7	1.0	32.9	54.2	28.7	11.0
	27		South Shield	80.1	80.1	1.0	23.1	95.8	26.3	10.0
	28		North Shield	67.5	67.5	1.0	33.2	56.1	28.7	10.8
	28		South Shield	76.2	76.2	1.1	57.2	87.6	26.3	9.9
	29		North Shield	67.6	67.6	1.0	24.4	63.9	29.0	11.2
	29		South Shield	77.9	77.9	1.1	28.7	98.1	26.5	10.1
	30		North Shield	71.2	71.2	1.2	24.5	56.0	28.3	10.7
	30		South Shield	77.3	77.3	1.0	30.5	126.4	26.7	10.0
	31		North Shield	75.0	75.0	1.0	22.9	48.9	28.9	11.3
	31		South Shield	76.3	76.3	1.1	22.5	97.8	26.9	10.1
	32		North Shield	68.3	68.3	1.0	39.1	55.9	29.3	11.0
	32		South Shield	63.5	63.5	1.0	47.2	155.6	26.3	10.1
	33		North Shield	67.9	67.9	1.0	23.4	48.9	28.2	10.6
	33		South Shield	68.0	68.0	1.0	39.1	112.9	26.3	9.8
	34		North Shield	75.8	75.8	1.0	22.9	55.2	29.7	11.3
	34		South Shield	77.3	77.3	1.0	22.6	95.9	27.0	10.2
	35		North Shield	68.1	68.1	1.0	35.4	49.0	29.3	11.0
	35		South Shield	70.2	70.2	1.0	26.1	85.1	27.2	10.3
	36		North Shield	74.9	74.9	1.0	33.1	48.8	28.5	10.7
	36		South Shield	74.1	74.1	1.1	14.4	93.4	26.6	10.0
	37		North Shield	66.2	66.2	1.0	33.1	64.6	28.8	10.8
	37		South Shield	69.6	69.6	1.0	22.2	152.9	26.6	10.1
	38		North Shield	67.4	67.4	1.3	39.0	56.2	28.1	10.5
	38		South Shield	73.5	73.5	1.1	46.8	112.4	25.8	9.7
	39		North Shield	72.6	72.6	1.0	22.7	55.3	28.2	11.0
	39		South Shield	71.8	71.8	1.0	34.0	163.8	26.6	10.1
	40		North Shield	68.5	68.5	1.0	22.9	56.2	28.4	11.2
	40		South Shield	69.0	69.0	1.0	26.2	94.6	26.0	9.9
	41		North Shield	66.9	66.9	1.0	24.5	48.9	28.6	10.7
	41		South Shield	70.7	70.7	1.0	23.9	79.3	26.7	10.1
	42		North Shield	64.5	64.5	1.0	35.7	67.0	28.4	10.7
	42		South Shield	72.9	72.9	1.1	34.0	86.1	26.5	10.1
	43		North Shield	62.3	62.3	1.1	24.5	56.2	28.3	10.7
	43		South Shield	70.2	70.2	1.0	26.7	121.2	26.4	9.9
	44		North Shield	66.7	66.7	1.0	24.6	64.0	29.1	11.2
	44		South Shield	74.0	74.0	1.0	33.9	102.5	26.9	10.2
	45		North Shield	72.7	72.7	1.0	33.1	58.5	29.0	10.9
	45		South Shield	71.8	71.8	1.1	30.0	168.7	26.7	10.1
	46		North Shield	73.8	73.8	1.0	23.2	48.8	28.7	10.7
	46		South Shield	69.0	69.0	1.1	46.6	92.5	26.9	10.1

Table C-31. Test 31 north and south shield pressure-time values for sheep numbers 714 and 715.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	47		North Shield	70.2	70.2	1.0	22.8	49.0	28.4	10.8
	47		South Shield	72.4	72.4	1.0	61.2	114.9	26.4	10.0
	48		North Shield	70.1	70.1	1.0	33.1	49.0	29.7	11.3
	48		South Shield	72.4	72.4	1.0	25.5	101.9	27.4	10.4
	49		North Shield	68.5	68.5	1.0	23.2	48.7	28.5	10.7
	49		South Shield	72.4	72.4	1.0	28.6	121.7	27.0	10.2
	50		North Shield	65.1	65.1	1.0	32.9	54.8	28.4	10.7
	50		South Shield	72.9	72.9	1.0	17.9	124.8	26.1	9.8
Mean				71.3	71.3	1.0	28.6	76.7	27.6	10.5
SD				4.3	4.3	0.1	7.9	28.4	1.1	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-32. Test 32 north and south shield pressure-time values for sheep numbers 716 and 717.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
12/10/96	1	127	North Shield	73.8	70.9	1.1	39.2	68.4	32.8	12.4
	1		South Shield	93.3	93.3	1.2	22.5	50.1	32.2	12.2
	2		North Shield	70.9	70.9	1.1	23.3	63.3	33.2	12.6
	2		South Shield	84.0	84.0	1.1	22.4	75.4	32.3	12.2
	3		North Shield	73.2	70.3	1.1	36.4	62.0	32.6	12.5
	3		South Shield	86.7	86.7	1.2	22.6	58.4	32.2	12.2
	4		North Shield	71.5	71.5	1.0	23.5	63.3	32.4	12.3
	4		South Shield	84.0	84.0	1.1	32.6	111.1	32.3	12.3
	5		North Shield	70.3	70.3	1.1	39.1	61.5	33.0	12.6
	5		South Shield	87.8	87.8	1.1	22.4	48.3	32.2	12.3
	6		North Shield	72.6	72.6	1.1	36.1	64.2	32.3	12.2
	6		South Shield	86.7	86.7	1.1	26.1	83.3	31.6	12.0
Mean				79.6	79.1	1.1	28.9	67.4	32.4	12.3
SD				8.2	8.7	0.1	7.2	16.7	0.4	0.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-33. Test 33 north and south shield pressure-time values for sheep numbers 718 and 719.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
12/12/96	1	90	North Shield	64.6	64.6	1.2	36.5	69.0	29.2	11.0
	1		South Shield	70.8	70.8	1.0	23.8	59.3	28.9	11.0
	2		North Shield	64.0	64.0	1.0	22.7	56.0	26.0	9.9
	2		South Shield	65.9	65.9	1.1	25.1	48.3	26.4	10.3
	3		North Shield	63.5	63.5	1.4	39.1	68.9	27.4	10.4
	3		South Shield	71.4	71.4	1.0	23.8	54.3	26.4	10.0
	4		North Shield	69.8	69.8	1.0	22.6	64.6	26.7	10.0
	4		South Shield	65.9	65.9	1.0	33.2	61.2	25.8	10.1
	5		North Shield	65.2	65.2	1.0	32.8	48.7	26.8	10.3
	5		South Shield	72.0	72.0	1.0	32.8	61.0	25.9	10.0
	6		North Shield	68.1	68.1	1.0	23.9	48.8	27.0	10.1
	6		South Shield	66.5	66.5	1.1	33.1	85.2	25.8	9.9
Mean				67.3	67.3	1.1	29.1	60.4	26.9	10.3
SD				3.0	3.0	0.1	6.0	10.7	1.1	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-34. Test 34 north and south shield pressure-time values for sheep numbers 720 and 721.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
12/17/96	1	90	North Shield	65.2	65.2	1.0	24.2	61.3	28.1	10.6
	1		South Shield	65.7	65.7	1.1	33.6	51.6	26.9	10.2
	2		North Shield	64.0	64.0	1.0	36.0	80.6	27.9	10.5
	2		South Shield	71.3	71.3	1.0	35.6	66.6	27.1	10.3
	3		North Shield	61.2	61.2	1.0	36.0	61.3	27.6	10.3
	3		South Shield	70.8	70.8	1.0	33.6	48.7	26.5	10.1
	4		North Shield	63.0	63.0	1.0	24.5	74.9	27.8	10.5
	4		South Shield	72.0	72.0	1.0	33.3	50.2	26.5	10.3
	5		North Shield	63.1	63.1	1.0	23.4	66.2	28.7	10.8
	5		South Shield	74.2	74.2	1.0	33.4	84.5	26.9	10.3
	6		North Shield	66.4	66.4	1.0	24.1	61.4	28.5	10.7
	6		South Shield	76.7	76.7	1.0	33.5	75.6	27.7	11.1
Mean				67.8	67.8	1.0	30.9	65.2	27.5	10.5
SD				5.0	5.0	0.0	5.2	11.8	0.7	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-35. Test 35 north and south shield pressure-time values for sheep numbers 722 and 723.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
12/19/96	1	90	North Shield	74.1	74.1	1.0	24.6	61.2	28.3	11.0
	1		South Shield	69.3	69.3	1.1	33.2	78.8	27.2	10.6
	2		North Shield	68.0	68.0	1.0	24.8	66.2	28.6	10.8
	2		South Shield	68.8	68.8	1.0	25.9	94.0	28.0	10.9
	3		North Shield	68.3	68.3	1.0	24.6	43.6	28.4	11.0
	3		South Shield	76.4	76.4	1.0	23.9	57.6	27.1	10.9
	4		North Shield	72.2	72.2	1.0	24.2	63.4	28.0	10.5
	4		South Shield	74.4	74.4	1.0	33.4	86.1	27.5	10.6
	5		North Shield	68.5	68.5	1.0	24.2	63.6	28.3	10.8
	5		South Shield	67.3	67.3	1.0	34.2	87.7	27.6	10.6
	6		North Shield							
	6		South Shield							
Mean				70.7	70.7	1.0	27.3	70.2	27.9	10.8
SD				3.3	3.3	0.0	4.4	15.8	0.5	0.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-36. Test 36 north and south shield pressure-time values for sheep numbers 724 and 725.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/7/97	1	90	North Shield							
	1		South Shield	68.4	68.4	1.0	37.7	51.8	27.8	10.6
	2		North Shield							
	2		South Shield	68.3	68.3	1.0	25.1	49.8	27.5	10.4
	3		North Shield							
	3		South Shield	65.0	65.0	1.0	24.4	49.9	27.7	10.6
	4		North Shield							
	4		South Shield	67.3	67.3	1.0	24.8	75.7	27.9	10.7
	5		North Shield							
	5		South Shield	67.3	67.3	1.0	33.3	86.1	27.3	11.0
	6		North Shield							
	6		South Shield	72.7	72.7	1.1	21.9	78.2	27.2	10.8
Mean				68.2	68.2	1.0	27.9	65.2	27.6	10.7
SD				2.5	2.5	0.0	6.2	16.6	0.3	0.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-37. Test 37 north and south shield pressure-time values for sheep numbers 726 and 727.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/9/97	1	90	North Shield	70.1	70.1	1.0	24.8	65.2	29.5	11.2
	1		South Shield	70.5	70.5	1.1	24.6	49.4	27.5	10.5
	2		North Shield	74.3	74.3	1.0	24.4	65.0	29.8	11.3
	2		South Shield	75.1	75.1	1.0	33.1	49.4	27.4	10.7
	3		North Shield	74.7	74.7	1.0	35.8	65.4	29.7	11.3
	3		South Shield	69.0	69.0	0.9	28.3	50.2	27.6	10.9
	4		North Shield	69.0	69.0	1.0	26.6	65.9	28.9	10.9
	4		South Shield	65.1	65.1	0.9	25.8	93.2	27.2	10.5
	5		North Shield	72.5	72.5	1.0	23.9	54.2	29.3	11.2
	5		South Shield	74.9	74.9	0.9	26.7	75.2	27.2	11.0
	6		North Shield	69.5	69.5	1.0	24.3	61.4	29.5	11.1
	6		South Shield	63.3	63.3	0.9	33.5	87.2	28.0	10.9
Mean				70.7	70.7	1.0	27.6	65.1	28.5	11.0
SD				3.8	3.8	0.0	4.2	14.2	1.1	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-38. Test 38 north and south shield pressure-time values for sheep numbers 728 and 729.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/14/97	1	60	North Shield	50.1	50.1	0.9	27.8	63.7	23.4	8.6
	1		South Shield	53.6	53.6	1.0	27.9	53.3	22.8	8.4
	2		North Shield	51.7	51.7	1.0	29.6	54.6	23.3	8.7
	2		South Shield	48.6	48.6	1.0	29.6	64.9	22.5	8.5
	3		North Shield	64.9	64.9	0.3	8.2	20.4	4.3	8.6
	3		South Shield	58.9	58.9	0.1	10.1	19.6	4.0	8.3
	4		North Shield	43.0	42.4	0.1	20.0	37.8	2.4	8.3
	4		South Shield	42.9	5.9	1.0	34.8	88.2	21.0	8.2
	5		North Shield	72.0	72.0	0.1	7.4	17.4	5.0	8.7
	5		South Shield	66.0	66.0	0.1	8.8	19.9	4.7	8.2
	6		North Shield	52.0	52.0	0.9	35.9	64.9	23.4	8.5
	6		South Shield	52.7	52.7	1.0	32.7	75.5	22.6	8.3
	7		North Shield	55.7	55.7	1.0	26.9	53.1	23.3	8.6
	7		South Shield	56.1	56.1	1.0	34.7	102.5	22.3	8.2
	8		North Shield	47.7	47.7	1.1	27.8	65.1	24.2	9.0
	8		South Shield	53.9	53.9	1.0	34.2	86.8	22.4	8.2
	9		North Shield	55.0	55.0	1.1	27.3	46.8	23.7	8.6
	9		South Shield	52.8	52.8	1.0	32.9	81.0	22.6	8.3
	10		North Shield	53.7	53.7	1.0	27.6	64.4	23.5	8.5
	10		South Shield	51.1	51.1	1.0	33.5	83.7	22.9	8.4
	11		North Shield	50.2	50.2	1.0	32.6	65.3	23.1	8.4
	11		South Shield	51.7	51.7	1.0	34.4	82.6	22.2	8.2
	12		North Shield	53.0	53.0	1.0	27.6	54.8	23.3	8.6
	12		South Shield	53.4	53.4	1.0	33.4	85.7	22.6	8.4
	13		North Shield	50.5	50.5	1.1	27.6	65.3	23.0	8.3
	13		South Shield	45.1	7.6	1.1	56.9	101.1	21.8	7.9
	14		North Shield	95.8	95.8	0.1	4.2	12.9	6.5	8.6
	14		South Shield	87.0	87.0	0.1	6.5	21.9	6.1	8.4
	15		North Shield	55.1	55.1	1.2	27.6	69.2	23.6	8.6
	15		South Shield	48.3	48.3	1.1	34.6	79.4	22.5	8.2
	16		North Shield	45.2	45.2	1.0	28.2	49.9	22.9	8.3
	16		South Shield	52.2	52.2	1.0	23.4	55.4	21.8	8.0
	17		North Shield	41.0	40.4	1.1	29.7	65.3	22.1	7.9
	17		South Shield	42.3	5.9	1.2	62.4	109.5	21.6	7.9
	18		North Shield	49.0	49.0	1.0	27.6	49.8	23.2	8.5
	18		South Shield	47.3	47.3	1.0	55.8	163.8	22.2	8.1
	19		North Shield	53.9	53.9	1.1	27.6	47.5	23.2	8.5
	19		South Shield	46.7	46.7	0.9	34.6	88.0	22.1	8.2
	20		North Shield	52.7	52.7	1.0	37.8	45.8	23.7	8.7
	20		South Shield	57.2	57.2	0.9	23.4	97.3	22.9	8.6
	21		North Shield	50.3	50.3	1.1	29.7	64.4	23.5	8.5
	21		South Shield	55.3	55.3	0.9	34.2	86.5	22.3	8.2
	22		North Shield	60.1	60.1	1.1	27.9	64.4	23.2	8.5
	22		South Shield	50.5	50.5	1.0	47.5	85.9	22.5	8.4
	23		North Shield	58.9	58.9	1.0	27.9	47.2	23.3	8.4
	23		South Shield	46.0	46.0	1.0	47.8	105.3	22.6	8.4

Table C-38. Test 38 north and south shield pressure-time values for sheep numbers 728 and 729.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/14/97	24	60	North Shield	50.2	50.2	1.0	28.7	54.1	23.2	8.4
	24		South Shield	56.1	56.1	1.0	48.0	85.5	22.3	8.3
	25		North Shield	60.1	60.1	1.0	27.9	47.0	23.7	8.6
	25		South Shield	54.2	54.2	1.0	33.0	95.8	22.6	8.2
	26		North Shield	60.2	60.2	0.2	16.1	32.1	4.1	9.9
	26		South Shield	55.5	55.5	0.3	21.3	70.6	4.2	9.5
	27		North Shield	53.8	53.8	0.1	12.0	23.8	3.5	8.6
	27		South Shield	54.5	49.0	1.0	51.9	86.3	22.4	8.7
	28		North Shield	72.6	72.6	0.2	8.1	18.0	4.9	8.7
	28		South Shield	66.1	66.1	0.1	10.2	34.0	4.5	8.5
	29		North Shield	47.3	47.3	1.0	27.6	47.7	23.2	8.5
	29		South Shield	54.0	54.0	1.0	48.4	88.4	22.1	8.2
	30		North Shield	53.3	53.3	0.9	29.4	53.3	23.1	8.5
	30		South Shield	55.1	55.1	1.0	46.2	88.0	22.1	8.5
	31		North Shield	58.3	58.3	1.0	27.5	47.0	23.3	8.5
	31		South Shield	52.9	52.9	1.0	48.9	108.2	22.1	8.5
	32		North Shield	54.1	54.1	1.0	27.6	47.7	24.0	8.9
	32		South Shield	53.5	53.5	1.0	81.4	108.4	23.1	8.7
	33		North Shield	53.0	53.0	1.0	27.5	57.0	23.3	8.5
	33		South Shield	56.7	56.7	1.0	46.3	120.7	22.5	8.4
	34		North Shield	46.1	46.1	1.1	29.7	65.2	23.1	8.4
	34		South Shield	51.1	51.1	1.0	48.1	123.4	22.3	8.4
	35		North Shield	51.9	51.9	1.0	29.5	65.0	23.3	8.5
	35		South Shield	56.7	56.7	1.0	46.5	84.9	22.4	8.4
	36		North Shield	47.9	47.9	1.1	37.8	47.9	23.0	8.4
	36		South Shield	55.5	55.5	1.0	62.4	105.5	22.3	8.2
	37		North Shield	62.4	62.4	1.0	27.6	46.8	23.6	8.7
	37		South Shield	56.1	56.1	0.9	56.3	120.2	22.7	8.5
	38		North Shield	51.9	51.9	1.1	27.8	56.7	23.3	8.5
	38		South Shield	54.9	54.9	1.0	34.9	87.2	22.1	8.1
	39		North Shield	60.1	60.1	1.1	27.6	56.6	23.3	8.5
	39		South Shield	54.0	54.0	1.0	46.4	82.9	22.4	8.5
	40		North Shield	56.2	56.2	1.1	27.6	46.7	23.4	8.6
	40		South Shield	60.6	60.6	1.0	48.1	82.4	22.6	8.4
	41		North Shield	58.2	58.2	1.0	27.6	47.1	23.5	8.5
	41		South Shield	57.0	57.0	1.0	88.1	167.4	22.7	8.3
	42		North Shield	52.5	52.5	1.0	27.8	46.0	23.3	8.5
	42		South Shield	54.8	54.8	1.0	48.5	115.7	22.4	8.2
	43		North Shield	52.0	52.0	1.0	27.8	64.3	23.1	8.4
	43		South Shield	49.3	49.3	1.0	46.6	125.8	22.0	8.1
	44		North Shield	56.5	56.5	1.1	29.6	54.3	23.2	8.5
	44		South Shield	54.0	54.0	1.0	46.5	101.7	22.6	8.5
	45		North Shield	49.0	49.0	1.0	27.7	55.4	23.5	8.6
	45		South Shield	52.7	52.7	1.0	48.5	103.8	22.8	8.4
	46		North Shield	58.2	42.1	0.3	15.5	35.6	5.2	8.7
	46		South Shield	53.8	45.0	0.3	21.5	67.3	4.8	8.2

Table C-38. Test 38 north and south shield pressure-time values for sheep numbers 728 and 729.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/14/97	47	60	North Shield	40.4	39.8	1.3	44.4	74.6	23.2	8.4
	47		South Shield	48.8	48.8	1.0	49.3	109.4	21.6	7.9
	48		North Shield	43.5	41.7	1.1	39.1	65.4	22.5	8.2
	48		South Shield	47.3	47.3	0.9	49.5	97.4	21.2	7.8
	49		North Shield	47.4	47.4	1.0	27.6	47.6	23.4	8.6
	49		South Shield	57.6	57.6	1.0	48.3	104.4	21.9	8.1
	50		North Shield	50.9	50.9	1.0	27.5	57.8	23.0	8.4
	50		South Shield	55.8	55.8	1.0	49.2	108.1	21.8	8.0
Mean				54.1	52.6	0.9	33.8	70.6	20.2	8.4
SD				7.9	11.3	0.3	14.6	30.2	6.4	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-39. Test 39 north and south shield pressure-time values for sheep numbers 730 and 731.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/16/97	1	60	North Shield	51.8	51.8	1.2	27.7	48.0	23.8	8.7
	1		South Shield	59.0	59.0	1.0	25.4	48.5	22.9	8.4
	2		North Shield	57.6	57.6	1.0	27.6	46.6	24.6	9.2
	2		South Shield	56.8	56.8	1.0	27.9	80.2	23.0	8.8
	3		North Shield	51.8	51.8	1.0	27.8	48.1	23.9	8.9
	3		South Shield	59.0	59.0	1.0	39.3	80.6	22.5	8.4
	4		North Shield	53.5	53.5	1.0	27.6	48.3	24.3	8.9
	4		South Shield	52.4	52.4	1.0	33.1	77.1	23.2	8.7
	5		North Shield	50.1	50.1	1.0	27.4	47.7	23.6	8.6
	5		South Shield	53.0	53.0	1.0	34.6	87.2	22.4	8.4
	6		North Shield	55.3	55.3	1.0	29.9	64.5	23.5	8.6
	6		South Shield	49.4	49.4	1.0	45.9	76.8	22.7	8.3
	7		North Shield	53.5	53.5	1.1	27.7	55.0	23.0	8.3
	7		South Shield	41.9	41.9	1.0	49.9	110.5	22.3	8.2
	8		North Shield	55.3	55.3	1.0	29.8	65.3	23.5	8.6
	8		South Shield	54.1	54.1	1.0	27.9	76.8	22.4	8.4
	9		North Shield	46.1	46.1	1.0	27.8	47.1	22.8	8.4
	9		South Shield	53.0	53.0	1.0	33.0	114.2	22.0	8.2
	10		North Shield	57.6	57.6	1.0	24.7	45.8	23.4	8.6
	10		South Shield	52.9	52.9	0.9	35.2	86.5	22.8	8.5
	11		North Shield	49.5	49.5	0.9	21.9	54.4	23.3	8.5
	11		South Shield	51.2	51.2	1.0	46.6	76.9	22.0	8.1
	12		North Shield	47.8	47.8	1.0	38.2	64.6	23.1	8.5
	12		South Shield	50.7	50.7	1.0	28.6	76.8	21.8	8.1
	13		North Shield	50.6	50.6	1.0	29.8	55.2	23.3	8.5
	13		South Shield	46.8	45.2	0.9	46.5	89.3	22.5	8.4
	14		North Shield	82.9	82.9	0.5	5.5	14.0	6.0	8.6
	14		South Shield	75.4	75.4	0.7	6.4	32.9	5.6	8.2
	15		North Shield	44.3	44.3	0.9	28.2	65.4	22.7	8.4
	15		South Shield	50.7	50.7	1.0	40.8	76.7	21.8	8.1
	16		North Shield	58.5	58.5	1.1	27.6	53.1	23.5	8.6
	16		South Shield	54.0	54.0	1.0	20.5	113.6	22.9	8.5
	17		North Shield	46.5	46.5	1.3	27.7	74.8	23.1	8.5
	17		South Shield	51.1	51.1	1.0	46.4	111.9	21.8	8.0
	18		North Shield	51.2	51.2	1.0	27.8	64.5	23.3	8.7
	18		South Shield	56.7	56.7	1.0	22.6	75.8	22.3	8.3
	19		North Shield	54.1	54.1	1.0	27.9	47.0	23.0	8.6
	19		South Shield	54.0	54.0	1.0	48.6	120.8	22.2	8.3
	20		North Shield	58.7	58.7	0.1	9.3	21.0	3.9	9.0
	20		South Shield	59.5	53.9	1.0	50.0	89.5	22.9	8.6
	21		North Shield	51.2	51.2	1.0	29.8	53.5	22.9	8.5
	21		South Shield	51.8	51.8	1.0	48.5	105.1	21.9	8.2
	22		North Shield	52.4	52.4	1.0	23.2	53.3	23.1	8.6
	22		South Shield	52.9	52.9	1.0	25.9	73.8	22.2	8.4
	23		North Shield	56.8	56.8	1.0	27.8	46.6	22.9	8.5
	23		South Shield	47.9	47.9	1.0	46.5	83.1	22.3	8.4

Table C-39. Test 39 north and south shield pressure-time values for sheep numbers 730 and 731.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/16/97	24	60	North Shield	48.8	48.8	1.3	27.6	76.2	24.0	8.8
	24		South Shield	57.2	57.2	1.0	23.7	113.3	22.5	8.7
	25		North Shield	53.2	53.2	1.0	27.7	53.5	22.9	8.3
	25		South Shield	47.8	47.8	1.0	46.7	87.7	22.1	8.2
	26		North Shield	66.1	66.1	0.4	7.7	20.1	4.8	8.7
	26		South Shield	60.1	60.1	0.6	11.7	52.9	4.6	8.4
	27		North Shield	47.2	47.2	1.0	27.8	53.3	23.5	8.8
	27		South Shield	53.9	53.9	1.0	46.3	121.9	22.4	8.4
	28		North Shield	68.4	68.4	0.1	8.3	19.7	4.5	8.8
	28		South Shield	62.3	62.3	0.1	11.3	50.7	4.2	8.5
	29		North Shield	56.9	56.9	1.0	27.8	56.3	23.9	8.9
	29		South Shield	55.5	55.5	1.0	48.6	86.7	22.6	8.4
	30		North Shield	50.4	50.4	1.0	32.9	64.3	23.3	8.6
	30		South Shield	56.7	56.7	0.9	47.8	86.9	22.4	8.4
	31		North Shield	52.3	52.3	1.0	27.8	54.4	23.6	8.8
	31		South Shield	56.3	56.3	0.9	29.4	70.0	22.3	8.5
	32		North Shield	39.7	39.1	1.3	38.8	84.8	23.2	8.5
	32		South Shield	43.0	39.6	1.2	53.4	113.0	22.6	8.2
	33		North Shield	50.0	50.0	1.0	35.8	53.7	23.8	8.9
	33		South Shield	59.4	59.4	0.9	37.5	113.0	22.3	8.3
	34		North Shield	50.6	50.6	1.1	27.0	53.7	23.4	8.6
	34		South Shield	57.3	57.3	1.0	48.5	160.0	22.1	8.3
	35		North Shield	53.9	53.9	1.0	29.2	53.7	23.7	8.8
	35		South Shield	56.1	56.1	1.0	31.1	103.5	22.5	8.5
	36		North Shield	55.7	55.7	1.0	27.7	52.5	24.1	8.9
	36		South Shield	55.2	55.2	0.9	46.4	98.5	23.0	8.6
	37		North Shield	50.4	50.4	1.0	24.9	65.2	24.1	8.9
	37		South Shield	52.0	52.0	1.0	24.8	87.1	23.0	8.4
	38		North Shield	74.8	74.8	0.2	7.3	16.9	6.4	8.9
	38		South Shield	67.6	67.6	0.2	12.1	40.8	6.0	8.3
	39		North Shield	57.0	57.0	1.0	24.7	64.5	23.5	8.7
	39		South Shield	54.4	54.4	0.9	34.5	77.9	22.6	8.4
	40		North Shield	50.6	50.6	1.3	29.2	55.2	23.8	8.6
	40		South Shield	56.1	56.1	0.9	46.7	88.9	22.4	8.3
	41		North Shield	54.9	54.9	1.0	27.7	55.3	23.4	8.6
	41		South Shield	53.3	53.3	0.9	46.7	88.1	22.0	8.1
	42		North Shield	48.8	48.8	1.0	28.3	66.1	23.9	8.9
	42		South Shield	55.6	55.6	1.0	34.6	87.9	22.2	8.4
	43		North Shield	54.9	54.9	1.2	33.0	54.4	23.7	8.5
	43		South Shield	55.5	55.5	0.9	31.6	97.7	22.4	8.2
	44		North Shield	56.2	56.2	1.0	23.1	64.6	23.5	8.7
	44		South Shield	52.8	52.8	0.9	24.0	88.0	22.4	8.4
	45		North Shield	45.9	6.8	1.2	43.9	57.6	23.7	8.7
	45		South Shield	51.5	51.5	1.0	46.2	108.0	22.2	8.1
	46		North Shield	57.9	57.9	1.0	29.2	55.2	23.6	8.7
	46		South Shield	54.7	54.7	0.9	48.8	113.2	22.7	8.3

Table C-39. Test 39 north and south shield pressure-time values for sheep numbers 730 and 731.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/16/97	47	60	North Shield	52.6	52.6	1.0	25.3	56.5	23.5	8.6
	47		South Shield	53.9	53.9	1.0	30.3	113.2	22.4	8.2
	48		North Shield	49.9	49.9	1.0	36.3	57.2	24.2	9.0
	48		South Shield	55.8	45.3	1.0	59.6	106.9	23.0	8.4
	49		North Shield	46.5	46.5	1.3	32.8	65.6	23.5	8.5
	49		South Shield	45.6	45.6	1.0	54.9	103.5	22.5	8.3
	50		North Shield	44.8	44.8	1.2	31.2	54.6	22.4	8.0
	50		South Shield	39.7	39.7	1.1	47.8	109.8	21.4	7.8
Mean				53.8	53.2	0.9	32.0	72.0	21.3	8.5
SD				6.6	8.2	0.2	11.6	26.7	5.2	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-40. Test 40 north and south shield pressure-time values for sheep numbers 732 and 733.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/21/97	1	60g	North Shield	51.8	51.8	1.0	37.3	56.3	23.0	8.4
	1		South Shield	55.9	55.9	1.0	32.8	60.1	22.0	8.4
	2		North Shield	53.1	53.1	1.0	27.4	49.2	23.3	8.4
	2		South Shield	54.8	54.8	0.9	27.8	61.1	22.3	8.1
	3		North Shield	57.1	57.1	1.2	35.2	64.6	22.7	8.3
	3		South Shield	47.6	47.6	1.2	45.4	86.1	21.9	8.0
	4		North Shield	55.4	55.4	1.0	37.3	55.3	23.0	8.4
	4		South Shield	52.6	52.6	0.9	32.9	60.2	22.0	8.2
	5		North Shield	49.7	49.7	1.0	37.2	56.3	22.5	8.2
	5		South Shield	49.8	49.8	0.9	27.5	87.8	21.7	8.0
	6		North Shield	52.5	52.5	1.3	37.2	80.2	23.0	8.3
	6		South Shield	54.2	54.2	1.0	32.4	74.1	22.3	8.2
	7		North Shield	49.0	49.0	1.3	34.0	69.3	22.9	8.3
	7		South Shield	50.4	50.4	1.0	27.9	67.5	22.0	8.2
	8		North Shield	52.5	52.5	1.3	35.3	64.9	22.9	8.3
	8		South Shield	55.9	55.9	1.0	33.1	78.2	22.1	8.1
	9		North Shield	50.2	50.2	1.2	45.4	65.9	23.3	8.4
	9		South Shield	60.9	60.9	0.9	27.9	59.0	22.2	8.4
	10		North Shield	46.8	46.8	1.2	39.2	87.4	22.9	8.2
	10		South Shield	53.8	53.8	1.0	34.3	77.6	21.9	8.1
	11		North Shield	58.2	58.2	1.3	35.3	63.8	23.4	8.5
	11		South Shield	52.6	52.6	0.9	46.6	58.5	22.4	8.3
	12		North Shield	57.7	57.7	1.0	22.6	46.5	22.7	8.3
	12		South Shield	55.9	55.9	0.9	33.4	88.0	22.0	8.4
	13		North Shield	50.2	50.2	1.1	24.3	78.2	22.7	8.2
	13		South Shield	52.1	52.1	1.0	45.4	73.6	22.1	8.0
	14		North Shield	45.0	45.0	1.3	36.0	69.5	22.5	8.2
	14		South Shield	56.4	56.4	1.0	45.8	77.4	21.5	8.1
	15		North Shield	49.1	49.1	1.2	32.8	67.8	23.3	8.4
	15		South Shield	53.7	53.7	1.0	32.9	64.9	22.2	8.1
	16		North Shield	47.9	47.9	1.2	32.6	61.6	22.3	8.1
	16		South Shield	50.9	50.9	1.0	45.4	98.7	21.7	8.0
	17		North Shield	54.2	54.2	1.0	29.3	61.0	22.6	8.2
	17		South Shield	48.1	48.1	0.9	31.7	126.1	21.7	8.2
	18		North Shield	51.9	51.9	1.2	35.3	65.9	22.8	8.2
	18		South Shield	50.4	50.4	1.0	45.0	77.9	22.0	8.0
	19		North Shield	55.9	55.9	1.2	33.8	46.1	23.0	8.3
	19		South Shield	56.6	56.6	0.9	45.5	97.3	22.2	8.4
	20		North Shield	56.5	56.5	1.1	36.1	64.9	23.0	8.4
	20		South Shield	58.7	58.7	1.0	39.8	76.5	22.4	8.2
	21		North Shield	42.1	39.2	1.2	40.6	84.2	22.5	8.1
	21		South Shield	45.8	45.8	1.0	46.6	138.6	21.8	7.9
	22		North Shield	52.4	52.4	1.0	22.2	60.9	22.5	8.2
	22		South Shield	53.7	53.7	0.9	47.7	77.1	21.4	8.1
	23		North Shield	43.3	43.3	1.0	41.4	65.9	22.1	8.1
	23		South Shield	50.9	50.9	0.9	44.9	105.5	21.7	8.0

Table C-40. Test 40 north and south shield pressure-time values for sheep numbers 732 and 733.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/21/97	24	60	North Shield	55.9	55.9	1.0	21.9	61.0	22.8	8.3
	24		South Shield	50.3	50.3	1.0	32.9	84.5	22.1	8.2
	25		North Shield	52.6	52.6	1.0	22.8	55.4	22.5	8.2
	25		South Shield	53.7	53.7	0.9	39.5	62.0	21.6	8.0
	26		North Shield	53.6	53.6	1.1	22.7	60.9	23.5	8.6
	26		South Shield	56.4	56.4	1.0	54.4	86.7	22.8	8.7
	27		North Shield	48.4	48.4	0.9	41.3	54.5	22.1	8.0
	27		South Shield	42.6	42.6	1.0	57.8	87.4	21.7	7.8
	28		North Shield	48.5	48.5	0.1	13.2	29.2	2.9	8.1
	28		South Shield	46.5	45.9	0.1	16.1	48.8	3.0	8.0
	29		North Shield	50.7	50.7	1.0	36.8	63.6	22.8	8.5
	29		South Shield	49.8	49.8	1.0	45.4	95.4	22.1	8.2
	30		North Shield	40.9	39.8	1.1	36.2	69.4	21.2	7.7
	30		South Shield	41.0	41.0	1.2	47.8	143.9	20.9	7.5
	31		North Shield	57.9	57.9	1.1	29.2	60.9	22.9	8.3
	31		South Shield	55.4	55.4	1.0	45.1	60.6	22.2	8.0
	32		North Shield	50.7	50.7	1.0	40.0	46.0	22.2	8.1
	32		South Shield	50.9	50.9	1.0	47.8	96.3	21.3	7.9
	33		North Shield	55.3	55.3	1.1	29.0	63.7	22.1	8.3
	33		South Shield	58.6	58.6	1.0	32.8	66.4	21.4	8.0
	34		North Shield	51.0	51.0	1.0	29.3	47.3	22.4	8.2
	34		South Shield	50.5	50.5	1.0	45.3	59.2	21.7	8.0
	35		North Shield	50.7	50.7	1.1	32.6	46.1	22.3	8.2
	35		South Shield	50.4	50.4	1.0	47.9	87.8	21.3	8.1
	36		North Shield	48.5	48.5	1.1	40.0	64.6	21.9	8.3
	36		South Shield	46.6	46.6	1.1	33.2	128.0	21.5	8.2
	37		North Shield	49.4	49.4	1.0	36.1	63.9	22.6	8.5
	37		South Shield	52.1	52.1	1.0	45.2	73.7	21.8	8.0
	38		North Shield	42.1	42.1	1.1	45.0	67.6	22.1	8.0
	38		South Shield	42.6	42.6	1.2	60.5	115.8	21.6	7.8
	39		North Shield	51.2	51.2	1.0	36.2	56.1	22.3	8.5
	39		South Shield	43.8	43.8	1.1	47.4	119.0	21.6	7.8
	40		North Shield	50.2	50.2	1.1	41.6	45.9	22.6	8.3
	40		South Shield	55.3	55.3	1.0	38.6	72.6	21.5	8.0
	41		North Shield	51.3	51.3	1.0	36.2	57.5	22.5	8.5
	41		South Shield	56.5	56.5	1.0	47.8	84.7	21.2	8.1
	42		North Shield	54.7	54.7	1.1	29.0	67.9	23.1	8.6
	42		South Shield	54.3	54.3	1.0	47.8	68.1	21.9	8.2
	43		North Shield	50.1	50.1	1.0	36.9	47.9	22.2	8.1
	43		South Shield	50.3	50.3	0.9	55.0	96.2	21.7	8.0
	44		North Shield	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	44		South Shield	0.3	0.3	0.0	0.0	0.0	0.0	0.2
	45		North Shield	52.4	8.7	1.0	38.0	48.8	23.1	8.6
	45		South Shield	54.9	54.9	0.9	48.7	65.6	22.0	8.4
	46		North Shield	54.7	54.7	1.0	36.5	48.8	22.8	8.4
	46		South Shield	59.7	59.7	0.9	46.6	83.8	21.4	7.5

Table C-40. Test 40 north and south shield pressure-time values for sheep numbers 732 and 733.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/21/97	47	60	North Shield	44.7	44.7	1.0	36.4	65.2	21.5	8.0
	47		South Shield	40.4	39.3	1.2	64.9	149.2	21.3	7.6
	48		North Shield	52.4	52.4	1.0	36.5	49.0	23.1	8.7
	48		South Shield	58.2	58.2	1.0	45.6	86.9	21.7	8.3
	49		North Shield	67.4	67.4	0.4	15.4	30.5	5.2	10.1
	49		South Shield	61.5	61.5	0.4	19.6	63.3	4.8	9.8
	50		North Shield	50.9	10.7	1.1	41.0	66.5	22.8	8.6
	50		South Shield	55.3	8.9	1.0	48.7	87.9	21.6	8.0
Mean				50.8	49.4	1.0	36.8	70.7	21.1	8.1
SD				8.7	11.3	0.2	10.8	24.3	4.7	1.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-41. Test 41 north and south shield pressure-time values for sheep numbers 734 and 735.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/28/97	1	60g	North Shield	46.8	46.8	1.1	44.2	65.2	22.5	8.7
	1		South Shield	51.7	51.7	1.0	27.3	52.3	22.2	8.2
	2		North Shield	49.2	49.2	1.1	37.3	76.2	23.0	9.1
	2		South Shield	55.5	55.5	1.0	27.4	59.0	21.9	8.2
	3		North Shield	52.6	52.6	1.4	37.3	56.4	23.0	8.5
	3		South Shield	60.3	60.3	1.0	20.0	46.9	22.1	8.1
	4		North Shield	80.8	80.8	0.3	6.2	16.3	5.4	7.9
	4		South Shield	73.9	73.9	0.2	6.3	18.5	5.1	7.9
	5		North Shield	60.2	60.2	0.2	10.6	34.0	4.2	8.8
	5		South Shield	60.1	55.1	1.0	35.8	60.0	22.6	8.5
	6		North Shield	52.1	52.1	1.1	32.3	59.0	22.9	8.4
	6		South Shield	58.4	58.4	1.0	39.1	55.7	21.5	8.2
	7		North Shield	49.4	49.4	1.0	37.3	65.2	22.5	8.7
	7		South Shield	54.2	54.2	1.0	45.4	98.3	21.9	8.0
	8		North Shield	51.4	51.4	1.0	26.7	67.9	22.7	8.6
	8		South Shield	58.2	58.2	1.0	33.1	77.8	21.9	8.0
	9		North Shield	67.6	67.6	0.3	8.0	19.5	4.6	9.1
	9		South Shield	61.8	61.8	0.1	9.8	35.1	4.3	8.2
	10		North Shield	48.5	48.5	1.0	39.8	69.7	22.5	9.0
	10		South Shield	56.4	56.4	1.0	45.7	94.0	22.2	8.1
	11		North Shield	51.6	51.6	1.0	32.3	65.2	22.7	9.0
	11		South Shield	56.0	56.0	1.0	46.0	85.3	22.0	8.1
	12		North Shield	50.5	50.5	1.3	37.1	65.2	22.6	8.7
	12		South Shield	46.5	46.5	1.1	45.7	76.2	21.6	7.8
	13		North Shield	52.5	52.5	1.0	35.2	70.1	22.6	8.7
	13		South Shield	60.3	60.3	1.0	45.6	66.5	22.0	8.0
	14		North Shield	52.5	52.5	1.4	29.3	84.2	22.7	8.8
	14		South Shield	55.8	55.8	1.0	57.3	109.4	21.9	8.1
	15		North Shield	46.2	46.2	1.3	39.9	74.0	23.2	8.9
	15		South Shield	56.4	56.4	1.0	46.8	81.7	22.0	8.1
	16		North Shield	52.6	52.6	1.3	35.2	67.9	23.4	8.9
	16		South Shield	53.2	53.2	1.0	72.9	139.2	21.9	7.7
	17		North Shield	52.5	52.5	1.3	32.2	61.2	22.9	8.4
	17		South Shield	51.4	51.4	1.0	46.9	149.1	21.9	8.1
	18		North Shield	51.3	51.3	2.8	44.3	85.6	26.3	9.5
	18		South Shield	55.8	55.8	1.0	47.6	86.3	21.6	8.5
	19		North Shield	49.5	49.5	1.0	29.2	65.9	22.7	8.8
	19		South Shield	56.9	56.9	1.0	53.5	125.0	22.0	8.1
	20		North Shield	58.8	58.8	1.3	32.3	65.9	23.3	8.4
	20		South Shield	54.7	54.7	1.2	57.8	112.3	22.1	8.1
	21		North Shield	51.9	51.9	1.3	35.7	64.0	22.4	8.3
	21		South Shield	52.2	52.2	1.0	55.0	122.7	21.9	8.1
	22		North Shield	52.0	52.0	1.3	36.0	67.1	23.1	8.5
	22		South Shield	60.8	60.8	1.0	54.7	124.5	21.9	8.0
	23		North Shield	47.9	47.9	1.2	36.2	63.4	23.0	8.7
	23		South Shield	57.0	57.0	1.0	57.0	95.3	21.6	7.9

Table C-41. Test 41 north and south shield pressure-time values for sheep numbers 734 and 735.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/28/97	24	60	North Shield							
	24		South Shield							
	25		North Shield	46.3	46.3	1.2	36.4	76.3	22.8	8.2
	25		South Shield	44.9	44.9	1.0	62.8	111.6	21.7	8.0
	26		North Shield	44.4	43.8	1.0	36.2	91.0	22.7	8.2
	26		South Shield	52.6	52.6	1.0	53.7	111.5	21.5	7.9
	27		North Shield	54.8	54.8	1.0	39.7	45.8	23.1	8.6
	27		South Shield	55.2	55.2	1.0	93.2	124.4	21.9	8.1
	28		North Shield	50.3	50.3	1.3	35.3	66.5	23.5	8.6
	28		South Shield	53.3	53.3	1.0	61.3	114.9	22.5	8.2
	29		North Shield	50.2	50.2	1.0	39.8	49.7	22.9	8.7
	29		South Shield	55.4	55.4	1.0	100.8	138.0	21.6	8.0
	30		North Shield	50.2	50.2	1.2	39.4	75.4	23.8	8.8
	30		South Shield	64.3	64.3	1.0	54.2	123.8	22.2	8.2
	31		North Shield	56.5	56.5	0.2	11.3	23.8	3.9	8.5
	31		South Shield	56.6	52.2	1.2	72.0	152.0	22.0	8.1
	32		North Shield	49.1	49.1	1.0	36.7	70.5	23.3	8.7
	32		South Shield	47.8	47.8	1.1	79.4	131.9	22.2	8.2
	33		North Shield	51.8	51.8	1.0	29.3	49.0	23.6	8.6
	33		South Shield	58.2	58.2	1.0	91.9	138.7	21.8	8.1
	34		North Shield	51.3	51.3	1.2	36.8	64.4	23.0	8.2
	34		South Shield	49.9	49.9	1.0	71.0	154.6	22.2	8.1
	35		North Shield	49.0	49.0	1.1	37.2	63.5	23.5	8.7
	35		South Shield	61.0	61.0	1.0	57.9	118.6	21.7	8.0
	36		North Shield	50.8	50.8	1.1	37.3	48.0	23.1	8.7
	36		South Shield	54.8	54.8	1.0	29.0	115.8	21.8	8.0
	37		North Shield	47.9	47.9	1.2	37.6	64.7	23.4	8.4
	37		South Shield	59.2	59.2	1.0	57.8	99.7	22.0	8.0
	38		North Shield	53.0	53.0	1.0	24.4	54.6	22.9	8.8
	38		South Shield	48.8	48.8	1.1	54.3	125.8	21.7	7.9
	39		North Shield	49.7	49.7	1.1	37.7	46.5	23.3	8.5
	39		South Shield	52.6	52.6	1.0	64.1	127.1	21.7	8.0
	40		North Shield	47.4	46.8	1.1	41.4	64.4	23.0	8.3
	40		South Shield	55.6	55.6	1.0	64.1	137.5	21.6	8.0
	41		North Shield	73.3	73.3	0.1	7.8	18.2	5.0	8.3
	41		South Shield	67.0	67.0	0.3	17.8	56.8	4.7	7.9
	42		North Shield	53.7	53.1	1.0	32.4	49.2	23.4	8.5
	42		South Shield	53.8	53.8	1.0	46.9	112.1	21.7	8.0
	43		North Shield	50.8	50.8	1.1	26.1	75.1	23.3	8.5
	43		South Shield	52.7	52.7	1.0	65.8	148.7	21.7	8.0
	44		North Shield	47.9	47.9	1.1	40.5	64.6	22.7	8.2
	44		South Shield	49.2	49.2	1.1	66.5	103.0	21.5	7.8
	45		North Shield	53.7	53.7	1.1	29.2	48.3	23.3	8.5
	45		South Shield	59.8	59.8	1.0	54.2	101.5	21.7	8.0
	46		North Shield	50.6	45.9	1.0	39.7	46.5	23.3	8.8
	46		South Shield	53.2	53.2	1.0	75.6	105.6	21.4	7.8

Table C-41. Test 41 north and south shield pressure-time values for sheep numbers 734 and 735.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/28/97	47	60	North Shield	46.7	46.7	1.1	30.4	77.3	22.3	8.3
	47		South Shield	43.9	43.9	1.1	56.7	84.4	21.1	7.6
	48		North Shield	53.0	53.0	1.0	24.0	47.9	23.4	8.5
	48		South Shield	52.1	52.1	1.1	46.7	64.8	22.0	8.0
	49		North Shield	46.2	45.0	1.1	39.8	49.9	22.8	8.2
	49		South Shield	49.8	49.8	1.0	63.4	154.1	21.3	7.7
	50		North Shield	51.9	51.9	1.2	45.3	87.0	23.6	8.9
	50		South Shield	59.8	59.8	1.0	45.6	108.7	22.0	8.1
Mean				54.0	53.8	1.0	43.0	82.0	21.0	8.3
SD				6.2	6.3	0.3	18.5	34.3	5.0	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-42. Test 42 north and south shield pressure-time values for sheep numbers 736 and 737.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/30/97	1	60	North Shield	50.8	50.8	1.0	22.9	60.5	23.2	8.7
	1		South Shield	54.5	54.5	1.0	32.5	56.6	21.9	8.1
	2		North Shield	51.5	51.5	1.1	21.9	65.1	23.5	8.7
	2		South Shield	54.9	54.9	1.0	27.1	58.1	22.2	8.2
	3		North Shield	45.7	42.8	1.2	40.0	75.8	23.2	8.3
	3		South Shield	52.4	52.4	1.0	20.8	78.3	22.0	8.1
	4		North Shield	51.5	49.7	1.2	40.4	70.8	23.4	8.4
	4		South Shield	54.5	54.5	1.0	33.0	104.4	22.3	8.2
	5		North Shield	53.7	53.7	1.2	22.7	55.7	22.9	8.2
	5		South Shield	44.9	44.9	1.2	45.7	85.2	22.0	7.9
	6		North Shield	39.4	35.3	1.3	40.2	78.6	22.2	8.3
	6		South Shield	40.2	39.1	1.3	47.0	119.6	21.1	7.5
	7		North Shield	48.0	48.0	1.2	40.5	64.5	23.4	8.7
	7		South Shield	59.0	59.0	1.0	19.8	73.1	22.1	8.2
	8		North Shield	49.1	49.1	1.0	40.5	47.6	22.4	8.2
	8		South Shield	43.9	43.9	1.0	46.9	130.8	20.8	7.3
	9		North Shield	49.1	49.1	1.2	40.2	47.5	23.4	8.4
	9		South Shield	51.6	51.6	1.0	45.7	59.0	21.7	7.9
	10		North Shield	47.4	46.2	1.2	40.0	65.8	22.8	8.6
	10		South Shield	52.7	52.7	1.0	45.6	56.4	21.5	7.9
	11		North Shield	47.9	47.9	1.2	40.5	47.6	23.1	8.2
	11		South Shield	50.0	50.0	1.0	46.2	66.0	22.0	8.0
	12		North Shield	46.1	43.2	1.1	44.1	65.8	23.0	8.3
	12		South Shield	48.3	48.3	1.0	48.0	126.6	21.6	7.9
	13		North Shield	47.8	47.8	1.2	40.1	64.9	22.8	8.1
	13		South Shield	49.5	49.5	1.0	48.0	93.8	21.6	7.9
	14		North Shield	47.3	47.3	1.2	25.3	66.1	22.6	8.3
	14		South Shield	52.4	52.4	1.0	45.3	59.4	22.0	8.2
	15		North Shield	47.4	47.4	1.2	41.5	64.9	23.1	8.2
	15		South Shield	51.2	51.2	1.0	45.5	59.3	21.8	8.0
	16		North Shield	48.4	48.4	1.3	45.4	64.5	22.6	8.0
	16		South Shield	51.1	51.1	1.0	46.5	59.1	21.5	7.9
	17		North Shield	47.4	44.5	1.1	43.1	65.9	23.8	8.7
	17		South Shield	55.5	55.5	1.0	34.1	85.4	22.0	8.1
	18		North Shield	45.6	45.0	1.2	22.3	76.6	23.0	8.3
	18		South Shield	53.7	53.7	1.0	46.7	75.8	21.9	8.0
	19		North Shield	48.5	48.5	1.2	43.2	64.1	23.8	8.6
	19		South Shield	44.1	44.1	1.0	46.9	104.7	22.1	8.3
	20		North Shield							
	20		South Shield	49.3	49.3	0.1	21.1	70.6	3.4	8.8
	21		North Shield	45.0	45.0	1.1	40.3	64.4	23.1	8.3
	21		South Shield	45.6	45.6	1.0	33.2	86.7	21.8	8.0
	22		North Shield	51.9	51.9	1.1	40.5	49.2	22.7	8.2
	22		South Shield	55.5	55.5	1.0	59.4	94.3	21.8	8.1
	23		North Shield	52.5	48.4	0.1	13.2	32.8	3.3	9.5
	23		South Shield	57.9	57.9	1.0	42.4	94.3	22.3	9.3

Table C-42. Test 42 north and south shield pressure-time values for sheep numbers 736 and 737.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/30/97	24	60	North Shield	41.5	39.2	1.2	42.8	80.5	22.0	8.5
	24		South Shield	41.1	40.5	1.1	56.9	125.2	20.5	7.4
	25		North Shield							
	25		South Shield							
	26		North Shield	45.7	45.7	1.1	40.5	64.8	23.0	8.4
	26		South Shield	53.2	53.2	1.0	45.7	93.5	21.2	7.4
	27		North Shield	51.3	51.3	1.1	41.7	46.5	22.7	8.2
	27		South Shield	52.9	52.9	1.1	46.7	79.0	21.6	8.0
	28		North Shield	50.2	50.2	1.1	43.2	44.3	22.9	8.5
	28		South Shield	54.3	54.3	1.0	28.1	101.8	21.6	8.0
	29		North Shield	53.1	53.1	1.1	40.2	77.2	22.8	8.7
	29		South Shield	53.8	53.8	1.0	46.4	94.1	21.5	7.9
	30		North Shield	47.3	47.3	1.2	40.1	65.0	22.5	8.3
	30		South Shield	51.8	51.8	1.0	45.7	126.6	21.7	8.1
	31		North Shield	50.2	50.2	1.3	41.5	77.0	22.7	8.2
	31		South Shield	50.5	50.5	1.0	47.8	139.9	22.0	8.0
	32		North Shield	52.5	52.5	1.0	24.5	49.1	23.0	8.3
	32		South Shield	52.8	52.8	1.0	54.3	110.8	22.1	8.2
	33		North Shield	1.3	1.3	0.7	69.1	637.3	0.4	0.5
	33		South Shield							
	34		North Shield	83.5	49.5	1.1	24.6	41.1	25.5	9.3
	34		South Shield	78.9	51.9	1.0	19.9	75.8	24.0	9.0
	35		North Shield	46.1	46.1	1.1	41.9	78.1	22.5	8.3
	35		South Shield	50.4	50.4	1.0	47.9	110.9	21.4	7.9
	36		North Shield	46.1	46.1	1.5	48.7	71.1	9.1	8.5
	36		South Shield	49.3	49.3	1.2	47.9	115.9	21.9	8.0
	37		North Shield	52.4	52.4	1.1	29.0	49.0	22.9	8.4
	37		South Shield	48.4	48.4	1.1	59.6	126.7	21.9	8.0
	38		North Shield	47.9	47.9	1.1	40.4	47.3	22.3	8.1
	38		South Shield	45.7	45.7	1.1	46.7	122.3	21.4	8.0
	39		North Shield	49.6	49.6	1.1	22.8	49.3	22.6	8.3
	39		South Shield	54.8	54.8	1.1	45.2	110.7	21.3	7.8
	40		North Shield	51.9	51.9	0.6	25.1	49.3	3.5	8.3
	40		South Shield	51.6	48.3	1.0	49.1	69.7	22.0	8.1
	41		North Shield	45.5	44.4	1.0	43.2	50.7	22.9	8.4
	41		South Shield	55.5	55.5	1.0	56.8	109.6	20.9	7.3
	42		North Shield	52.5	52.5	1.1	24.5	46.6	23.2	8.5
	42		South Shield	57.4	57.4	1.0	45.5	86.9	21.6	8.1
	43		North Shield	49.0	49.0	1.0	24.1	47.2	22.8	8.5
	43		South Shield	50.4	50.4	1.0	56.7	162.9	21.7	7.9
	44		North Shield	52.5	52.5	1.0	22.7	46.4	23.1	8.6
	44		South Shield	51.7	51.7	1.0	65.9	92.6	21.9	8.1
	45		North Shield	48.4	48.4	1.0	44.8	48.1	22.8	8.6
	45		South Shield	48.2	48.2	1.0	56.9	138.2	21.5	7.9
	46		North Shield	53.1	53.1	1.1	39.9	48.2	23.4	8.5
	46		South Shield	53.3	53.3	1.0	45.6	98.4	21.9	8.1

Table C-42. Test 42 north and south shield pressure-time values for sheep numbers 736 and 737.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
1/30/97	47	60	North Shield	49.0	47.2	1.1	41.8	49.4	23.3	8.4
	47		South Shield	51.2	51.2	1.0	34.2	563.5	21.7	8.0
	48		North Shield	49.0	46.1	1.0	22.9	48.2	22.8	8.3
	48		South Shield	48.8	48.8	1.0	58.0	420.2	21.4	7.9
	49		North Shield	48.4	47.8	1.0	45.1	46.8	22.9	8.3
	49		South Shield	55.6	55.6	1.1	58.2	106.7	21.6	8.0
	50		North Shield	54.7	54.7	0.1	10.7	26.0	3.8	8.3
	50		South Shield	58.8	49.4	1.0	34.7	113.8	21.8	8.1
Mean				50.3	49.2	1.0	40.1	91.0	21.2	8.1
SD				7.8	6.5	0.2	11.7	87.2	4.6	0.9

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-43. Test 43 north and south shield pressure-time values for sheep numbers 740 and 741.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/6/97	1	60	North Shield	51.2	51.2	1.1	39.0	65.7	22.7	8.7
	1		South Shield	55.7	55.7	1.0	24.9	58.5	21.9	8.1
	2		North Shield	54.1	54.1	1.1	29.2	65.8	23.3	8.7
	2		South Shield	54.7	54.7	1.0	27.2	70.5	22.4	8.4
	3		North Shield	33.4	33.4	0.9	39.0	88.3	17.4	6.4
	3		South Shield	43.1	42.5	1.0	49.0	74.6	21.4	7.9
	4		North Shield	49.5	49.5	1.0	22.4	45.4	19.0	6.8
	4		South Shield	59.6	59.6	1.0	27.4	57.6	22.3	8.4
	5		North Shield	37.5	37.5	1.0	39.1	69.3	18.4	6.6
	5		South Shield							
	6		North Shield	47.2	47.2	1.1	29.1	45.3	18.7	6.7
	6		South Shield	59.0	59.0	1.2	32.7	60.2	21.8	8.1
	7		North Shield	39.1	39.1	1.0	24.1	48.1	18.1	6.4
	7		South Shield	43.5	43.5	1.0	45.3	77.9	21.4	7.9
	8		North Shield	43.2	43.2	1.1	27.3	45.9	18.4	6.5
	8		South Shield	52.5	52.5	1.0	45.3	73.1	21.6	8.0
	9		North Shield	45.5	45.5	1.0	22.6	46.9	18.3	6.5
	9		South Shield	49.1	49.1	1.0	45.3	85.5	21.5	8.0
	10		North Shield	45.5	45.5	1.1	27.6	47.5	18.2	6.5
	10		South Shield	52.5	52.5	1.0	45.2	63.4	21.4	7.9
	11		North Shield	46.1	46.1	1.1	24.1	46.7	19.4	7.0
	11		South Shield	52.5	52.5	1.0	45.2	94.0	22.8	8.5
	12		North Shield	43.8	43.8	1.1	36.8	63.5	18.6	6.7
	12		South Shield	53.6	53.6	1.2	47.7	149.0	21.9	8.1
	13		North Shield	45.5	45.5	1.0	22.6	62.0	18.0	6.5
	13		South Shield	51.3	51.3	1.0	45.1	88.0	21.8	8.1
	14		North Shield	41.5	40.9	1.0	27.4	62.2	18.1	6.5
	14		South Shield	54.6	54.6	1.0	39.0	86.8	21.4	8.1
	15		North Shield							
	15		South Shield							
	16		North Shield	48.4	48.4	1.0	24.8	45.1	18.4	6.6
	16		South Shield	51.2	51.2	1.1	46.3	87.9	21.9	8.1
	17		North Shield	43.8	43.8	1.0	27.5	45.8	17.9	6.5
	17		South Shield	52.8	52.8	1.0	45.4	58.7	21.3	7.9
	18		North Shield	39.2	38.6	1.0	45.0	62.3	17.7	6.3
	18		South Shield	48.0	48.0	1.0	53.9	77.9	21.4	8.0
	19		North Shield	44.4	44.4	1.0	39.8	63.6	18.9	6.8
	19		South Shield	56.2	56.2	1.0	46.3	75.6	22.2	8.3
	20		North Shield	43.8	43.8	0.9	29.0	62.3	18.2	6.6
	20		South Shield	58.5	58.5	1.0	33.9	76.6	21.7	8.2
	21		North Shield	41.4	41.4	1.0	24.0	69.2	18.4	6.6
	21		South Shield	53.5	53.5	1.0	38.4	68.6	21.9	8.1
	22		North Shield	47.2	47.2	0.9	21.5	45.1	17.7	6.4
	22		South Shield	53.0	53.0	1.0	45.2	71.7	21.4	8.0
	23		North Shield	48.4	48.4	0.9	21.4	39.7	18.3	6.6
	23		South Shield	57.9	57.9	1.0	38.4	71.9	21.6	8.1

Table C-43. Test 43 north and south shield pressure-time values for sheep numbers 740 and 741.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/6/97	24	60	North Shield	46.1	46.1	0.9	24.7	41.6	18.8	6.8
	24		South Shield	54.6	54.6	1.0	54.0	86.6	22.2	8.3
	25		North Shield	48.4	48.4	0.9	22.7	55.9	18.3	6.6
	25		South Shield	46.4	46.4	1.0	46.4	75.8	22.0	8.2
	26		South Shield							
	26		South Shield							
	27		South Shield	51.0	51.0	1.0	56.3	84.7	21.3	7.9
	27		North Shield	42.6	42.6	1.0	27.6	60.6	17.7	6.4
	28		South Shield	52.9	52.9	1.0	39.3	82.8	21.4	8.0
	28		North Shield	38.0	38.0	1.0	39.8	63.3	17.5	6.3
	29		North Shield	43.8	43.8	0.9	29.0	48.6	18.0	6.5
	29		South Shield	55.6	55.6	1.0	38.9	65.1	21.2	7.9
	30		North Shield	47.2	47.2	1.1	21.3	44.1	18.2	6.5
	30		South Shield	51.2	51.2	1.0	38.9	93.7	21.5	8.0
	31		North Shield	39.2	39.2	1.1	24.1	57.7	18.2	6.5
	31		South Shield	54.1	54.1	1.0	54.1	85.4	21.5	8.0
	32		South Shield	55.7	55.7	1.2	45.2	84.6	21.7	8.0
	32		North Shield	42.1	42.1	1.1	22.5	59.5	18.2	6.4
	33		North Shield	46.1	46.1	1.0	26.6	44.8	18.4	6.6
	33		South Shield	55.2	55.2	1.0	39.4	93.5	21.8	8.2
	34		North Shield	38.0	38.0	1.1	36.8	62.0	17.3	6.3
	34		South Shield	47.9	47.9	1.0	57.9	94.8	21.2	7.9
	35		South Shield	53.0	53.0	1.1	56.4	95.6	21.4	8.0
	35		North Shield	46.1	46.1	1.1	24.4	51.5	17.6	6.4
	36		North Shield							
	36		South Shield							
	37		South Shield	54.0	54.0	1.1	45.2	93.5	21.5	8.0
	37		North Shield	44.9	44.9	0.9	21.5	61.8	17.5	6.3
	38		South Shield	50.1	50.1	0.9	58.3	85.4	21.4	8.0
	38		North Shield	44.4	44.4	0.9	21.3	45.1	17.9	6.4
	39		North Shield	44.9	44.9	1.0	22.6	64.9	18.0	6.5
	39		South Shield	52.8	52.8	1.0	46.4	80.0	21.7	8.1
	40		North Shield	47.8	47.8	0.9	24.7	45.1	17.7	6.4
	40		South Shield	56.6	56.6	1.0	45.3	84.5	21.3	7.9
	41		North Shield	47.8	47.8	1.0	19.6	45.1	17.1	6.2
	41		South Shield	46.9	46.9	1.0	45.3	99.2	21.3	8.0
	42		North Shield	45.5	45.5	0.9	22.5	46.2	17.4	6.3
	42		South Shield	57.3	57.3	1.0	38.9	61.6	21.1	7.9
	43		South Shield	45.3	45.3	1.0	73.4	107.0	20.2	7.0
	43		North Shield	41.5	41.5	0.9	22.6	45.8	17.1	6.2
	44		North Shield	46.7	46.7	1.0	24.7	46.7	18.1	6.5
	44		South Shield	56.0	56.0	1.1	46.4	57.4	21.9	8.0
	45		North Shield	46.7	46.7	1.0	21.4	43.5	17.5	6.3
	45		South Shield	49.5	49.5	1.1	33.2	671.0	21.3	7.9
	46		South Shield	54.6	54.6	1.0	38.4	67.7	21.0	7.9
	46		North Shield	42.6	42.6	0.9	20.1	48.5	18.0	6.6

Table C-43. Test 43 north and south shield pressure-time values for sheep numbers 740 and 741.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/6/97	47	60	North Shield							
	47		South Shield							
	48		South Shield	56.6	56.6	1.0	46.3	87.0	20.9	7.8
	48		North Shield	43.2	41.5	1.0	22.6	72.9	17.6	6.3
	49		South Shield	50.6	50.6	1.0	45.2	85.3	20.7	7.7
	49		North Shield	44.4	44.4	1.0	21.5	43.9	17.7	6.3
	50		North Shield	49.5	49.5	1.0	24.7	45.2	18.2	6.5
	50		South Shield	53.9	53.9	1.0	51.1	88.2	21.1	7.9
Mean				48.6	48.5	1.0	35.6	73.8	19.9	7.3
SD				5.7	5.7	0.1	11.8	66.1	1.9	0.8

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-44. Test 44 north and south shield pressure-time values for sheep numbers 742 and 743.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/11/97	1	60	North Shield	36.3	36.3	1.0	27.6	49.8	17.6	6.3
	1		South Shield	44.3	44.3	1.1	33.4	61.4	21.0	7.6
	2		North Shield	46.1	46.1	1.2	21.4	41.5	18.1	6.5
	2		South Shield	52.5	52.5	1.0	27.9	48.5	21.0	7.8
	3		North Shield	47.2	47.2	1.1	21.5	42.7	17.9	6.4
	3		South Shield	53.9	53.9	1.0	27.8	56.2	21.6	7.9
	4		North Shield	48.4	48.4	1.2	19.6	40.0	18.0	6.4
	4		South Shield	53.1	53.1	1.2	41.1	58.7	21.0	7.6
	5		North Shield	47.2	47.2	1.0	21.5	44.8	17.9	6.4
	5		South Shield	48.8	48.8	1.1	21.1	85.4	21.5	7.9
	6		South Shield	56.0	56.0	1.0	32.6	57.5	21.6	7.9
	6		North Shield	46.1	46.1	1.0	21.3	44.5	18.6	6.7
	7		North Shield	44.9	44.9	1.1	27.5	61.2	17.7	6.3
	7		South Shield	51.7	51.7	1.0	46.1	98.5	21.2	7.8
	8		South Shield	50.4	50.4	1.1	46.4	121.1	21.6	7.9
	8		North Shield	42.6	42.6	1.2	29.2	75.6	18.0	6.4
	9		South Shield	56.0	56.0	1.0	33.7	85.2	21.2	7.8
	9		North Shield	46.1	46.1	1.1	21.3	41.5	17.9	6.4
	10		North Shield	43.2	43.2	1.1	22.5	67.1	17.5	6.3
	10		South Shield	50.5	50.5	1.0	39.4	77.8	21.0	7.8
	11		North Shield	41.5	41.5	1.3	22.6	69.4	17.7	6.3
	11		South Shield	55.5	55.5	1.2	44.8	84.8	21.0	7.7
	12		North Shield	38.0	37.5	1.0	23.8	56.6	17.2	6.2
	12		South Shield	41.2	40.6	1.1	57.6	112.8	20.8	7.5
	13		North Shield	47.2	47.2	1.0	21.5	45.0	17.5	6.3
	13		South Shield	49.3	49.3	1.0	53.9	87.3	20.7	7.6
	14		North Shield	44.9	44.9	0.9	27.6	62.2	18.2	6.6
	14		South Shield	57.7	57.7	1.0	45.2	75.2	21.6	7.9
	15		North Shield	47.8	47.8	0.9	24.6	45.2	18.0	6.5
	15		South Shield	51.7	51.7	1.0	59.5	122.5	21.1	7.9
	16		North Shield	43.8	43.8	0.9	27.7	57.5	17.9	6.5
	16		South Shield	53.3	53.3	1.0	45.2	119.9	21.0	7.8
	17		North Shield	43.2	41.5	1.0	23.9	48.8	18.2	6.4
	17		South Shield	50.0	50.0	1.1	57.9	68.7	21.5	7.9
	18		North Shield	40.3	39.8	1.0	40.0	49.3	18.0	6.4
	18		South Shield	49.8	49.8	1.0	53.9	103.5	20.7	7.6
	19		North Shield	43.8	43.8	1.0	22.4	42.9	18.7	6.8
	19		South Shield	55.8	55.8	1.0	56.2	68.4	21.4	8.0
	20		North Shield	48.9	48.9	1.0	22.4	49.5	18.6	6.7
	20		South Shield	53.1	53.1	1.0	59.5	121.1	21.5	7.8
	21		South Shield	54.4	54.4	1.0	51.2	69.2	21.8	8.1
	21		North Shield	47.8	47.8	1.0	19.6	61.9	19.0	6.8
	22		North Shield	42.0	42.0	1.0	21.5	46.9	18.8	6.8
	22		South Shield	56.6	56.6	1.0	56.5	87.5	21.6	8.0
	23		South Shield	55.4	55.4	1.0	59.6	90.6	21.4	7.8
	23		North Shield	45.5	45.5	1.0	32.3	50.6	19.2	6.9

Table C-44. Test 44 north and south shield pressure-time values for sheep numbers 742 and 743.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/11/97	24	60	North Shield	51.2	51.2	1.0	22.5	44.8	18.8	6.8
	24		South Shield	59.7	59.7	1.0	55.5	129.5	20.7	7.1
	25		North Shield	45.5	45.5	1.0	22.5	46.2	18.6	6.7
	25		South Shield	54.7	54.7	1.0	64.1	87.3	21.0	7.8
	26		North Shield	47.2	47.2	1.0	21.2	43.9	17.2	6.3
	26		South Shield	47.2	47.2	1.0	56.3	121.1	21.1	7.9
	27		North Shield	43.2	43.2	1.0	27.6	52.5	17.6	6.3
	27		South Shield	59.2	59.2	1.0	59.6	86.9	21.1	7.7
	28		North Shield	44.9	44.9	1.0	22.2	63.5	18.2	6.5
	28		South Shield	48.8	48.8	1.0	44.9	124.0	21.2	7.8
	29		North Shield	47.2	47.2	1.0	22.4	56.4	17.6	6.3
	29		South Shield	49.9	49.9	1.1	56.4	122.6	21.4	7.8
	30		North Shield	46.7	46.7	1.0	19.6	48.1	18.3	6.6
	30		South Shield	47.1	47.1	1.0	56.6	104.2	21.6	7.9
	31		North Shield	48.4	48.4	1.0	21.4	44.8	18.4	6.6
	31		South Shield	54.8	54.8	1.1	46.4	111.4	21.5	7.9
	32		North Shield	44.3	44.3	1.0	22.4	57.5	18.2	6.6
	32		South Shield	53.4	53.4	1.0	54.0	87.8	21.3	7.9
	33		North Shield	47.2	47.2	1.0	21.4	41.2	18.5	6.7
	33		South Shield	60.1	60.1	1.0	26.4	60.5	21.7	8.1
	34		North Shield	50.1	50.1	1.1	21.3	53.9	18.0	6.4
	34		South Shield	59.5	59.5	1.0	46.6	61.7	20.8	7.9
	35		North Shield	45.5	45.5	1.1	24.0	56.3	17.8	6.4
	35		South Shield	51.3	51.3	1.1	56.7	138.7	21.3	7.7
	36		North Shield	48.4	48.4	0.9	22.6	46.9	18.6	6.8
	36		South Shield	63.4	63.4	1.0	26.4	80.5	21.3	8.0
	37		North Shield	40.9	40.9	1.0	27.3	49.5	17.8	6.4
	37		South Shield	46.1	46.1	1.2	58.0	122.3	21.5	7.8
	38		North Shield	42.1	42.1	1.1	21.3	56.4	17.9	6.4
	38		South Shield	55.4	55.4	1.0	57.9	87.9	21.3	7.8
	39		North Shield	34.0	34.0	1.2	38.0	69.9	17.3	6.1
	39		South Shield	43.3	43.3	1.3	53.3	98.6	20.5	7.5
	40		North Shield	48.4	48.4	1.0	22.5	48.7	18.0	6.5
	40		South Shield	52.6	52.6	1.0	56.5	87.6	21.2	7.9
	41		North Shield	45.5	45.5	1.0	27.6	42.2	17.9	6.4
	41		South Shield	58.1	58.1	1.0	56.3	97.0	21.2	7.8
	42		North Shield	46.1	46.1	1.0	21.5	39.6	18.5	6.6
	42		South Shield	55.4	55.4	1.1	56.4	74.3	21.4	7.8
	43		North Shield	48.4	48.4	1.0	27.6	44.7	18.5	6.7
	43		South Shield	53.2	53.2	1.0	56.4	98.4	21.1	7.9
	44		North Shield	50.7	50.7	1.1	24.6	47.0	17.7	6.4
	44		South Shield	43.8	43.8	1.2	46.5	138.3	20.9	7.6
	45		North Shield	47.8	47.8	1.0	24.1	46.7	17.6	6.3
	45		South Shield	50.5	50.5	1.3	56.2	81.6	21.0	7.6
	46		North Shield	47.8	47.8	1.1	19.5	46.1	17.9	6.4
	46		South Shield	48.6	48.6	1.3	56.5	120.0	21.0	7.6

Table C-44. Test 44 north and south shield pressure-time values for sheep numbers 742 and 743.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/11/97	47	60	North Shield	41.4	41.4	1.0	21.5	48.0	18.4	6.6
	47		South Shield	63.2	63.2	1.0	54.0	85.9	21.0	7.7
	48		North Shield	43.2	43.2	1.0	22.1	45.1	18.4	6.7
	48		South Shield	56.2	56.2	1.0	45.2	73.3	21.2	7.9
	49		North Shield	43.8	43.8	1.2	26.1	55.6	17.9	6.4
	49		South Shield	43.2	43.2	1.4	56.4	118.2	21.3	7.6
	50		North Shield	44.3	44.3	1.0	24.2	57.2	18.1	6.5
	50		South Shield	52.1	52.1	1.1	51.0	75.3	20.8	7.6
Mean				49.0	49.0	1.0	36.7	72.1	19.7	7.1
SD				5.6	5.7	0.1	15.1	27.5	1.6	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-45. Test 45 north and south shield pressure-time values for sheep numbers 744 and 745.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/13/97	1	60	North Shield	41.0	41.0	1.1	46.3	93.5	21.9	7.8
	1		South Shield	38.3	35.5	1.2	39.2	87.2	20.8	7.5
	2		North Shield	43.8	43.8	1.2	45.5	114.7	22.3	8.0
	2		South Shield	44.2	44.2	1.0	41.4	74.1	20.8	7.5
	3		North Shield	48.5	48.5	1.1	37.6	74.4	22.0	8.1
	3		South Shield	44.5	44.5	1.2	40.3	86.6	21.1	7.6
	4		North Shield	64.0	64.0	0.2	8.1	34.6	4.4	9.1
	4		South Shield	56.9	56.9	0.2	10.3	37.5	4.3	8.8
	5		North Shield	47.8	47.8	0.9	37.6	69.3	22.5	8.4
	5		South Shield	50.9	50.9	1.0	38.4	87.4	21.1	7.8
	6		North Shield	39.8	39.2	1.2	45.8	91.0	22.2	7.9
	6		South Shield	41.5	41.5	1.0	39.9	103.1	20.8	7.6
	7		North Shield	44.4	44.4	1.1	41.4	74.5	22.8	8.2
	7		South Shield	44.2	44.2	1.0	48.4	88.3	21.0	7.6
	8		North Shield	39.8	38.6	1.1	55.0	89.1	22.8	8.1
	8		South Shield	48.1	48.1	1.0	46.4	86.4	21.7	7.8
	9		South Shield	46.6	46.6	1.0	56.7	88.1	21.1	7.7
	9		North Shield	40.9	40.9	0.9	59.5	89.1	22.2	8.1
	10		North Shield	49.5	49.5	1.1	36.9	57.4	22.6	8.0
	10		South Shield	52.0	52.0	0.9	46.3	122.5	19.9	6.5
	11		North Shield	45.0	45.0	1.2	37.6	75.6	22.4	8.1
	11		South Shield	47.7	47.7	1.0	46.6	102.0	21.2	7.8
	12		North Shield	40.9	40.9	1.2	45.5	86.5	21.9	7.9
	12		South Shield	44.9	44.9	1.0	58.3	104.5	20.7	7.5
	13		North Shield	50.7	50.7	1.2	37.6	63.2	22.1	7.9
	13		South Shield	52.7	52.7	1.0	25.1	86.1	21.1	7.8
	14		North Shield	41.5	41.5	1.0	37.8	86.5	21.8	7.7
	14		South Shield	42.2	42.2	1.0	59.4	141.9	20.6	7.4
	15		North Shield	51.3	51.3	1.1	39.7	67.6	22.5	8.5
	15		South Shield	56.0	56.0	1.0	46.4	87.2	21.5	7.9
	16		North Shield	10.9	1.7	0.5	39.9	188.2	3.0	2.4
	16		South Shield							
	17		North Shield	47.3	47.3	1.3	44.5	66.4	22.8	8.2
	17		South Shield	51.6	51.6	1.0	66.5	102.8	21.5	7.9
	18		North Shield	43.8	39.8	1.2	42.1	89.6	22.4	8.1
	18		South Shield	56.9	56.9	1.0	48.4	109.5	21.4	7.8
	19		North Shield	39.9	38.1	1.3	45.5	86.5	22.4	7.9
	19		South Shield	43.0	43.0	1.0	55.8	122.9	21.0	7.7
	20		North Shield	46.2	46.2	1.3	44.4	66.3	22.3	7.9
	20		South Shield	46.6	46.6	1.0	74.6	143.8	21.1	7.7
	21		North Shield	40.4	40.4	0.9	45.4	87.0	22.5	8.2
	21		South Shield	56.6	56.6	1.0	48.5	89.3	21.3	7.9
	22		North Shield	45.6	45.6	1.0	44.5	74.5	22.6	8.3
	22		South Shield	59.7	59.7	1.0	46.3	114.1	21.3	7.8
	23		North Shield	38.1	38.1	1.4	45.5	87.3	21.8	7.7
	23		South Shield	42.5	40.9	1.0	57.2	109.3	20.5	7.4

Table C-45. Test 45 north and south shield pressure-time values for sheep numbers 744 and 745.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/13/97	24	60	North Shield	42.1	39.8	1.2	53.5	91.2	21.9	7.8
	24		South Shield	43.7	43.7	1.0	58.1	101.1	20.8	7.6
	25		North Shield	44.4	44.4	1.0	40.3	86.6	21.9	8.0
	25		South Shield	47.6	47.6	1.0	63.0	166.4	21.1	7.7
	26		North Shield	41.5	41.5	1.1	39.6	94.4	21.9	7.8
	26		South Shield	43.3	43.3	1.1	67.8	115.8	21.0	7.6
	27		North Shield	48.5	48.5	1.0	36.9	68.8	22.0	8.4
	27		South Shield	55.4	55.4	1.0	63.8	123.6	21.2	7.8
	28		North Shield	49.0	49.0	0.9	24.4	62.4	21.9	7.9
	28		South Shield	52.2	52.2	1.0	48.6	112.4	20.8	7.7
	29		North Shield	46.1	46.1	1.1	37.0	63.6	22.5	8.1
	29		South Shield	49.8	49.8	0.9	65.9	118.5	20.8	7.7
	30		North Shield	54.7	54.7	1.0	37.7	49.0	23.4	8.5
	30		South Shield	52.0	52.0	1.0	84.4	122.1	21.7	8.0
	31		North Shield	46.7	46.7	1.1	37.8	89.8	22.5	8.2
	31		South Shield	54.8	54.8	1.0	62.6	119.0	21.0	7.7
	32		North Shield	44.4	44.4	1.1	41.5	74.6	22.6	8.1
	32		South Shield	55.8	55.8	1.0	56.9	100.3	20.8	7.6
	33		North Shield	50.1	50.1	1.0	37.8	66.5	22.6	8.3
	33		South Shield	55.3	55.3	1.0	57.9	104.2	21.2	7.8
	34		North Shield	47.9	47.9	1.0	37.6	67.1	22.2	8.4
	34		South Shield	55.9	55.9	0.9	66.0	137.3	21.0	7.8
	35		North Shield	53.1	53.1	1.0	37.6	63.1	23.2	8.4
	35		South Shield	54.2	54.2	1.0	68.6	114.1	22.0	8.0
	36		North Shield	54.8	54.8	1.0	37.6	74.6	22.5	8.2
	36		South Shield	56.4	56.4	1.0	56.6	94.7	21.2	7.8
	37		North Shield	46.7	46.7	0.9	39.6	67.6	22.7	8.2
	37		South Shield	52.5	52.5	1.0	46.0	122.1	21.3	7.9
	38		North Shield	51.3	51.3	1.1	37.7	65.7	22.7	8.3
	38		South Shield	54.2	54.2	1.0	56.8	112.3	21.9	8.0
	39		North Shield	55.9	55.9	1.0	44.3	68.7	23.1	8.6
	39		South Shield	56.4	56.4	0.9	51.9	104.4	21.5	8.0
	40		North Shield	49.0	49.0	1.0	39.6	68.7	22.4	8.2
	40		South Shield	53.8	53.8	1.0	64.5	110.9	21.3	7.9
	41		North Shield	53.6	53.6	1.1	29.2	74.4	22.3	8.3
	41		South Shield	61.0	61.0	1.0	93.0	111.2	21.2	7.9
	42		North Shield	41.6	41.6	1.3	44.2	86.5	22.2	7.9
	42		South Shield	46.0	46.0	1.0	72.2	115.0	20.7	7.6
	43		North Shield	46.2	46.2	1.0	44.3	75.4	22.0	8.0
	43		South Shield	57.5	57.5	1.0	63.9	91.7	20.7	7.6
	44		North Shield	47.3	47.3	1.2	44.4	75.5	22.5	8.3
	44		South Shield	53.7	53.7	1.0	84.3	100.9	21.2	7.8
	45		North Shield	48.4	48.4	1.2	37.5	61.8	22.4	8.1
	45		South Shield	52.1	52.1	1.0	66.2	116.3	21.5	7.9
	46		North Shield	47.2	47.2	1.0	29.2	61.9	22.6	8.2
	46		South Shield	41.6	5.7	1.0	87.2	123.0	21.3	7.8

Table C-45. Test 45 north and south shield pressure-time values for sheep numbers 744 and 745.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/13/97	47	60	North Shield	52.4	52.4	1.0	29.3	64.4	22.8	8.3
	47		South Shield	48.1	48.1	0.9	73.0	121.4	21.5	7.9
	48		North Shield	44.9	44.9	0.9	39.6	84.8	22.1	8.0
	48		South Shield	46.0	46.0	1.0	83.5	140.2	20.9	7.6
	49		North Shield	42.7	41.5	1.0	39.6	94.1	22.6	8.2
	49		South Shield	47.7	47.7	1.0	60.1	106.2	21.6	7.9
	50		North Shield	57.1	49.0	0.1	11.0	24.8	3.3	8.1
	50		South Shield	52.0	50.3	0.1	36.9	109.5	3.0	7.8
Mean				48.3	47.6	1.0	48.2	92.2	20.8	7.9
SD				6.8	8.6	0.2	15.6	26.7	4.1	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-46. Test 46 north and south shield pressure-time values for sheep numbers 746 and 747.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/18/97	1	60	North Shield	37.4	37.4	1.2	24.8	66.2	17.9	6.4
	1		South Shield	52.8	52.8	1.0	24.6	59.9	20.7	7.7
	2		North Shield	45.5	45.5	1.0	36.6	61.7	17.6	6.3
	2		South Shield	50.7	50.7	1.0	32.4	59.7	21.1	7.8
	3		North Shield	50.1	50.1	0.9	27.7	46.9	17.9	6.5
	3		South Shield	49.6	47.4	1.0	26.8	50.3	21.6	8.1
	4		North Shield	41.5	41.5	1.0	21.2	64.1	17.8	6.4
	4		South Shield	54.0	54.0	1.0	21.2	59.0	21.3	7.9
	5		North Shield	51.3	51.3	1.0	21.4	41.4	18.1	6.5
	5		South Shield	54.5	54.5	1.0	32.4	55.9	21.5	8.0
	6		North Shield	41.5	41.5	1.0	24.1	54.3	18.1	6.5
	6		South Shield	52.9	52.9	1.0	21.2	61.4	21.0	7.9
	7		North Shield	36.3	36.3	1.1	37.1	46.9	18.1	6.4
	7		South Shield	51.7	51.7	1.0	39.1	59.9	21.0	7.7
	8		North Shield	50.7	50.7	1.0	22.3	42.5	18.4	6.5
	8		South Shield	56.8	56.8	1.1	19.8	58.7	21.2	7.9
	9		North Shield	52.4	52.4	1.0	19.5	42.3	18.5	6.7
	9		South Shield	56.0	56.0	1.0	32.4	73.4	21.4	7.8
	10		North Shield	44.3	44.3	1.1	23.9	46.5	17.6	6.3
	10		South Shield	45.7	45.7	1.2	54.4	87.7	21.1	7.7
	11		North Shield	48.4	48.4	1.0	24.1	42.5	18.6	6.7
	11		South Shield	54.0	54.0	1.0	32.5	73.7	21.2	8.0
	12		North Shield	39.1	39.1	1.0	24.1	45.9	18.3	6.5
	12		South Shield	56.7	56.7	1.0	46.1	60.3	21.2	7.9
	13		North Shield	47.2	47.2	1.0	22.3	32.7	18.7	6.7
	13		South Shield	56.8	56.8	1.1	20.8	77.1	21.5	8.0
	14		North Shield	43.2	43.2	1.1	22.3	45.3	17.9	6.3
	14		South Shield	47.5	47.5	1.0	45.0	87.7	21.2	7.9
	15		North Shield	43.8	43.8	1.1	22.3	67.4	18.2	6.4
	15		South Shield	48.0	48.0	1.0	45.1	74.9	21.4	7.9
	16		North Shield	43.2	42.6	1.1	22.5	48.8	18.3	6.5
	16		South Shield	51.1	51.1	1.0	45.2	68.4	21.2	7.9
	17		North Shield	44.9	43.8	1.1	22.4	46.9	18.4	6.4
	17		South Shield	48.3	47.7	1.0	32.9	75.0	21.1	7.7
	18		North Shield	44.3	44.3	1.1	24.1	46.9	18.6	6.7
	18		South Shield	51.6	51.6	1.0	45.1	76.4	21.2	7.7
	19		North Shield	44.4	42.1	1.1	22.5	50.9	18.3	6.5
	19		South Shield	52.8	52.8	1.2	45.7	61.8	21.4	7.8
	20		North Shield	44.9	44.9	1.0	27.4	48.8	17.4	6.3
	20		South Shield	47.3	47.3	1.0	46.2	74.8	20.7	7.6
	21		North Shield	47.2	47.2	1.1	22.4	42.5	18.6	6.6
	21		South Shield	56.3	56.3	1.0	44.9	72.1	21.7	8.0
	22		North Shield	44.9	44.9	1.1	22.3	47.8	18.2	6.4
	22		South Shield	61.8	61.8	1.0	23.2	74.4	20.9	7.8
	23		North Shield	38.0	38.0	1.0	22.5	45.9	18.5	6.7
	23		South Shield	56.5	56.5	1.0	45.1	69.5	21.1	7.8

Table C-46. Test 46 north and south shield pressure-time values for sheep numbers 746 and 747.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/18/97	24	60	North Shield	44.3	44.3	1.0	22.4	45.8	18.4	6.6
	24		South Shield	52.9	52.9	1.0	55.8	75.0	21.3	8.0
	25		North Shield	42.6	42.6	1.1	24.1	44.8	17.9	6.4
	25		South Shield	46.7	46.7	1.0	54.6	78.3	21.2	7.8
	26		North Shield	44.9	44.9	0.9	24.2	46.3	17.9	6.4
	26		South Shield	52.7	52.7	1.0	46.3	60.5	21.1	7.8
	27		North Shield	43.8	43.8	0.9	22.3	45.1	18.6	6.7
	27		South Shield	57.8	57.8	1.0	20.8	75.4	21.9	8.1
	28		North Shield	38.0	38.0	1.0	26.3	44.7	17.4	6.2
	28		South Shield	55.6	55.6	1.1	32.4	76.3	21.1	7.8
	29		North Shield	47.8	47.8	1.0	22.3	45.0	18.5	6.6
	29		South Shield	54.8	54.8	1.0	32.5	76.4	20.9	7.7
	30		North Shield	42.0	42.0	1.1	27.9	63.6	17.6	6.3
	30		South Shield	47.2	47.2	1.1	57.9	74.9	20.9	7.6
	31		North Shield	44.9	44.9	1.1	37.0	55.7	17.7	6.3
	31		South Shield	41.1	40.5	1.2	54.5	76.5	20.8	7.6
	32		North Shield	42.6	42.6	1.0	23.8	44.7	18.4	6.5
	32		South Shield	45.1	45.1	1.2	54.5	76.5	21.3	7.7
	33		North Shield	49.5	49.5	1.0	22.5	42.5	18.8	6.8
	33		South Shield	53.8	53.8	1.1	32.5	59.0	21.5	7.9
	34		North Shield	40.3	40.3	1.0	23.7	44.7	17.5	6.2
	34		South Shield	43.9	43.9	1.0	58.9	77.1	20.7	7.5
	35		North Shield	42.6	42.6	1.0	24.0	44.8	17.4	6.2
	35		South Shield	43.9	43.9	1.1	55.7	76.4	20.7	7.5
	36		North Shield	41.5	41.5	1.1	27.7	47.6	18.1	6.4
	36		South Shield	58.3	58.3	1.0	21.9	76.3	21.1	7.8
	37		North Shield	39.2	38.6	1.1	24.0	42.9	17.8	6.4
	37		South Shield	45.8	45.8	1.0	58.7	76.5	20.9	7.7
	38		North Shield	38.6	38.6	1.2	22.4	47.7	17.5	6.3
	38		South Shield	44.5	40.6	1.1	53.5	94.4	20.6	7.5
	39		North Shield							
	39		South Shield							
	40		North Shield	35.1	32.2	1.1	22.4	46.8	18.2	6.5
	40		South Shield	44.5	44.0	1.1	57.7	87.5	21.2	7.7
	41		North Shield	41.4	41.4	1.1	24.7	56.7	18.4	6.6
	41		South Shield	58.0	58.0	1.1	53.3	58.7	21.0	7.7
	42		North Shield	44.3	43.2	1.0	22.3	50.7	18.2	6.5
	42		South Shield	55.9	55.9	1.0	45.0	61.7	20.8	7.6
	43		North Shield	43.2	43.2	1.0	22.4	52.1	18.1	6.5
	43		South Shield	60.6	60.6	1.0	44.9	60.8	20.5	7.7
	44		North Shield	49.0	49.0	1.1	22.3	44.5	18.1	6.4
	44		South Shield	58.4	58.4	1.1	23.1	59.8	21.0	7.7
	45		North Shield	50.7	50.7	1.0	22.3	24.9	18.4	6.5
	45		South Shield	55.1	55.1	1.1	44.8	87.4	21.3	7.9
	46		North Shield	41.4	41.4	1.1	24.6	54.9	18.3	6.5
	46		South Shield	48.3	48.3	1.1	57.7	86.3	21.0	7.7

Table C-46. Test 46 north and south shield pressure-time values for sheep numbers 746 and 747.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/18/97	47	60	North Shield	38.0	38.0	1.1	23.8	63.6	17.0	6.0
	47		South Shield	40.1	40.1	1.2	58.6	97.4	19.9	7.1
	48		North Shield	48.4	48.4	1.0	24.5	44.9	18.1	6.4
	48		South Shield	47.9	47.9	1.1	45.9	76.3	21.2	7.8
	49		North Shield	39.7	39.7	1.1	23.8	51.0	18.1	6.4
	49		South Shield	45.6	45.6	1.1	55.6	113.5	20.8	7.6
	50		North Shield	44.9	44.9	1.0	22.4	61.5	18.4	6.7
	50		South Shield	55.5	55.5	1.0	53.3	76.3	21.4	7.9
Mean				47.8	47.6	1.0	33.2	60.7	19.6	7.1
SD				6.1	6.3	0.1	13.0	16.0	1.6	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-47. Test 47 north and south shield pressure-time values for sheep numbers 748 and 749.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/20/97	1	60	North Shield	47.2	47.2	1.0	19.6	54.4	18.4	6.6
	1		South Shield	57.6	57.6	1.0	27.1	56.0	21.6	7.9
	2		North Shield	38.6	38.6	1.4	37.4	56.4	17.8	6.2
	2		South Shield	52.7	52.7	1.0	28.2	56.2	21.1	7.7
	3		North Shield	41.4	41.4	1.1	29.0	69.1	18.2	6.5
	3		South Shield	54.3	54.3	1.0	27.2	61.5	21.7	7.9
	4		North Shield	47.2	47.2	1.0	21.2	45.1	18.2	6.5
	4		South Shield	55.5	55.5	1.0	32.4	60.6	21.3	7.9
	5		North Shield	43.2	43.2	0.9	21.4	50.9	17.4	6.3
	5		South Shield	50.4	50.4	1.0	46.1	68.7	21.4	7.8
	6		North Shield	44.3	44.3	0.9	24.6	52.9	17.9	6.5
	6		South Shield	48.3	48.3	1.0	32.6	88.2	21.5	8.0
	7		North Shield	44.9	44.9	1.2	38.0	55.9	18.1	6.4
	7		South Shield	51.5	51.5	1.0	39.5	77.9	21.4	7.8
	8		North Shield	42.1	42.1	0.9	22.5	47.6	18.4	6.7
	8		South Shield	58.3	58.3	1.0	33.5	76.7	21.5	8.0
	9		North Shield	42.6	42.6	0.9	24.4	57.4	18.0	6.5
	9		South Shield	49.6	49.6	0.9	46.4	60.2	21.4	8.0
	10		North Shield	44.9	44.9	1.2	28.6	68.9	17.5	6.3
	10		South Shield	41.1	5.8	1.0	60.7	77.8	21.3	7.8
	11		North Shield	43.8	43.8	0.9	22.6	64.4	18.1	6.5
	11		South Shield	55.0	55.0	1.0	38.9	77.1	21.3	7.9
	12		North Shield	35.1	32.2	1.3	27.6	57.9	17.5	6.2
	12		South Shield	43.4	6.4	1.1	47.4	94.1	20.7	7.6
	13		North Shield	34.5	34.5	1.1	36.9	63.1	17.6	6.3
	13		South Shield	42.7	6.2	1.2	47.6	77.9	21.1	7.5
	14		North Shield	44.3	44.3	1.0	37.0	57.6	17.8	6.4
	14		South Shield	48.2	48.2	1.0	46.5	94.4	21.4	7.8
	15		North Shield	42.6	42.6	0.9	26.2	43.7	17.9	6.5
	15		South Shield	47.8	47.8	1.0	46.4	111.6	21.1	7.8
	16		North Shield	43.2	43.2	1.0	31.5	68.4	18.2	6.6
	16		South Shield	49.3	49.3	1.0	53.9	98.4	21.2	7.8
	17		North Shield	42.6	42.6	0.9	27.3	50.1	17.7	6.4
	17		South Shield	54.5	54.5	1.0	33.0	61.5	21.4	8.0
	18		North Shield	48.9	48.9	1.1	24.2	53.7	17.9	6.4
	18		South Shield	48.2	48.2	1.1	37.3	88.1	21.4	7.8
	19		North Shield	41.4	41.4	1.1	36.2	55.6	18.0	6.4
	19		South Shield	41.1	41.1	1.0	54.2	78.1	21.7	8.0
	20		North Shield	43.8	43.8	0.9	21.5	62.0	17.4	6.3
	20		South Shield	52.3	52.3	1.0	27.2	77.8	21.1	7.8
	21		North Shield	36.9	36.9	1.1	37.8	61.5	18.3	6.5
	21		South Shield	50.4	50.4	1.0	47.5	100.6	21.4	7.8
	22		North Shield	47.2	47.2	1.0	27.5	42.8	17.9	6.4
	22		South Shield	51.0	51.0	1.0	57.9	78.0	21.4	7.8
	23		North Shield	45.5	45.5	0.9	29.1	62.1	18.2	6.6
	23		South Shield	58.7	58.7	1.0	45.1	95.7	21.5	7.9

Table C-47. Test 47 north and south shield pressure-time values for sheep numbers 748 and 749.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/20/97	24	60	North Shield	40.9	40.9	1.0	1.6	2.7	17.8	6.4
	24		South Shield	48.6	48.6	1.0	2.8	3.7	21.1	7.5
	25		North Shield	38.6	37.4	1.0	36.9	61.4	17.8	6.3
	25		South Shield	52.6	52.6	0.9	59.6	127.8	20.1	6.6
	26		North Shield	38.6	38.6	1.0	24.1	61.3	17.6	6.3
	26		South Shield	51.6	51.6	1.0	38.3	85.9	21.4	7.8
	27		North Shield	47.8	47.8	1.0	19.6	56.2	17.7	6.4
	27		South Shield	42.7	41.5	1.0	59.6	97.4	21.6	7.9
	28		North Shield	44.3	44.3	0.9	24.2	57.3	17.6	6.3
	28		South Shield	50.6	50.6	1.0	46.4	88.1	21.6	7.9
	29		North Shield	40.9	40.9	1.1	24.1	57.3	17.8	6.4
	29		South Shield	50.0	50.0	1.0	46.5	75.0	21.0	7.8
	30		North Shield	47.2	47.2	1.1	19.7	50.8	17.9	6.4
	30		South Shield	50.4	50.4	1.0	54.0	99.0	21.1	7.7
	31		North Shield	45.5	45.5	1.1	27.2	57.5	18.2	6.5
	31		South Shield	62.2	62.2	1.0	39.2	60.6	21.3	7.9
	32		North Shield	43.2	43.2	1.1	26.2	47.8	17.5	6.3
	32		South Shield	49.4	49.4	1.0	54.0	111.9	21.0	7.7
	33		North Shield	40.9	40.3	1.1	21.2	57.3	17.2	6.2
	33		South Shield	47.3	47.3	1.1	45.2	111.1	20.9	7.7
	34		North Shield	43.2	43.2	1.1	24.2	57.6	18.1	6.5
	34		South Shield	46.0	46.0	1.0	59.1	105.9	21.4	7.8
	35		North Shield	44.3	44.3	1.1	27.2	57.1	18.1	6.5
	35		South Shield	50.7	50.7	1.0	54.0	75.4	21.7	8.0
	36		North Shield	35.2	35.2	1.1	23.9	65.8	17.0	6.0
	36		South Shield	46.6	46.6	0.9	57.7	85.5	19.8	7.2
	37		North Shield	35.1	32.2	0.9	24.0	51.8	17.5	6.3
	37		South Shield	49.3	49.3	1.0	52.5	79.0	20.7	7.6
	38		North Shield	39.7	39.7	1.0	21.5	57.5	17.9	6.5
	38		South Shield	55.2	55.2	1.0	46.3	124.5	20.4	7.1
	39		North Shield	48.9	48.9	1.1	24.1	49.7	18.1	6.5
	39		South Shield	52.8	52.8	1.0	55.8	85.9	21.4	7.9
	40		North Shield	45.5	45.5	1.0	22.4	62.9	18.2	6.5
	40		South Shield	56.6	56.6	1.0	53.9	125.5	21.1	7.8
	41		North Shield	43.8	43.8	1.2	36.6	60.0	17.8	6.4
	41		South Shield	51.7	51.7	1.0	57.8	95.3	21.3	7.8
	42		North Shield	36.9	36.9	1.2	36.8	63.0	18.0	6.4
	42		South Shield	51.5	51.5	0.9	54.2	92.0	21.2	7.7
	43		North Shield	35.7	35.7	1.2	36.5	62.9	17.7	6.3
	43		South Shield	51.2	51.2	1.0	48.6	73.3	20.9	7.7
	44		North Shield	39.1	38.6	1.2	29.1	58.4	17.9	6.4
	44		South Shield	51.6	51.6	1.0	40.3	73.7	20.9	7.7
	45		North Shield	43.2	43.2	1.1	28.7	62.5	18.3	6.5
	45		South Shield	49.6	49.6	1.0	55.8	88.0	21.7	8.0
	46		North Shield	44.9	44.9	1.0	36.8	57.4	17.5	6.4
	46		South Shield	53.1	53.1	1.0	53.7	121.1	20.9	7.6

Table C-47. Test 47 north and south shield pressure-time values for sheep numbers 748 and 749.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/20/97	47	60	North Shield	47.2	47.2	1.1	19.5	46.0	18.2	6.6
	47		South Shield	53.2	53.2	1.0	59.0	78.0	21.8	7.9
	48		North Shield	38.0	35.7	1.2	24.0	69.7	17.6	6.3
	48		South Shield	50.4	50.4	1.0	46.4	94.6	20.7	7.5
	49		North Shield	44.3	44.3	1.0	22.4	58.2	18.1	6.5
	49		South Shield	54.9	54.9	1.0	49.9	88.0	21.3	7.8
	50		North Shield	44.3	44.3	0.9	24.1	42.1	17.6	6.4
	50		South Shield	54.7	54.7	0.9	59.4	87.3	20.4	7.1
Mean				46.7	45.5	1.0	36.4	70.4	19.5	7.1
SD				5.9	9.2	0.1	13.6	22.3	1.7	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-48. Test 48 north and south shield pressure-time values for sheep numbers 750 and 751.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/27/97	1	60	North Shield	43.8	43.8	1.0	21.5	55.5	17.8	6.4
	1		South Shield	56.2	56.2	1.0	25.4	55.0	21.4	8.1
	2		North Shield	32.2	30.5	1.1	36.4	86.3	17.3	6.2
	2		South Shield	45.7	45.7	1.0	25.9	86.3	21.0	7.7
	3		North Shield	45.5	45.5	1.0	24.5	47.4	18.2	6.6
	3		South Shield	55.7	55.7	1.0	32.4	49.1	21.8	8.2
	4		North Shield	39.7	39.7	1.0	37.0	63.2	18.3	6.6
	4		South Shield	52.9	52.9	1.0	27.8	60.0	22.1	8.2
	5		North Shield	47.2	47.2	1.0	22.7	42.9	18.5	6.7
	5		South Shield	60.6	60.6	1.0	41.2	76.8	22.2	8.2
	6		North Shield	35.7	35.7	1.1	39.4	47.4	17.4	6.2
	6		South Shield	46.8	46.8	1.0	32.4	77.9	20.7	7.6
	7		North Shield	40.3	40.3	1.1	21.7	46.1	17.7	6.4
	7		South Shield	46.9	46.9	1.0	45.1	60.3	21.6	8.0
	8		North Shield	41.4	41.4	1.1	22.7	63.2	18.1	6.5
	8		South Shield	52.9	52.9	1.0	33.1	87.9	21.3	7.9
	9		North Shield	37.5	34.0	1.3	36.4	58.5	18.2	6.4
	9		South Shield	45.3	45.3	1.1	49.1	94.5	21.4	7.9
	10		North Shield	42.7	42.7	1.0	27.5	57.5	18.0	6.5
	10		South Shield	55.7	55.7	1.0	23.0	63.9	22.0	8.2
	11		North Shield	37.3	37.3	1.2	27.9	46.1	17.8	6.3
	11		South Shield	43.9	43.9	1.1	47.5	86.4	21.4	7.8
	12		North Shield	42.0	42.0	1.2	22.7	55.5	18.2	6.5
	12		South Shield	54.7	54.7	1.0	33.9	66.0	21.2	7.6
	13		North Shield	37.4	37.4	1.1	24.6	45.2	17.3	6.2
	13		South Shield	48.0	48.0	1.0	47.8	77.8	21.3	7.9
	14		North Shield	42.6	42.6	1.0	21.6	45.6	17.6	6.4
	14		South Shield	50.6	50.6	1.0	44.8	78.2	21.3	7.9
	15		North Shield	36.3	35.7	1.0	27.7	48.8	16.7	5.9
	15		South Shield	43.0	43.0	1.1	60.5	119.9	20.7	7.5
	16		North Shield	38.6	38.6	1.1	29.2	48.0	18.3	6.5
	16		South Shield	50.1	50.1	1.0	47.8	77.9	21.7	8.0
	17		North Shield	39.7	39.7	1.0	37.2	45.9	17.8	6.4
	17		South Shield	56.8	56.8	1.0	24.8	77.0	21.5	8.0
	18		North Shield	43.8	43.8	1.0	29.0	60.9	17.7	6.4
	18		South Shield	54.0	54.0	1.0	43.2	86.5	21.4	8.0
	19		North Shield	38.0	38.0	1.1	29.0	60.2	17.5	6.3
	19		South Shield	45.1	45.1	1.0	48.0	102.9	21.2	7.9
	20		North Shield	43.8	43.8	1.1	27.4	44.6	17.7	6.4
	20		South Shield	45.1	45.1	1.0	84.0	111.8	21.7	8.1
	21		North Shield	37.4	37.4	1.1	36.3	63.2	17.4	6.3
	21		South Shield	45.7	45.7	1.0	54.2	95.7	21.2	7.8
	22		North Shield	48.3	48.3	1.0	22.5	44.7	18.2	6.6
	22		South Shield	53.5	53.5	1.0	57.3	85.9	21.6	8.1
	23		North Shield	43.3	43.3	1.3	27.7	41.2	18.0	6.5
	23		South Shield	47.5	47.5	1.2	54.8	112.7	21.8	8.0

Table C-48. Test 48 north and south shield pressure-time values for sheep numbers 750 and 751.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/27/97	24	60	North Shield	38.5	38.5	1.1	36.3	60.3	17.2	6.3
	24		South Shield	50.6	50.6	1.0	45.9	100.3	20.9	7.8
	25		North Shield	36.3	36.3	1.2	27.8	66.4	17.1	6.1
	25		South Shield	44.7	44.7	1.0	59.4	88.0	20.4	7.5
	26		North Shield	42.6	42.6	1.1	27.4	64.4	17.7	6.3
	26		South Shield	49.0	49.0	1.0	57.2	88.1	21.2	7.8
	27		North Shield	43.9	43.9	1.1	22.7	61.4	18.1	6.5
	27		South Shield	49.7	49.7	1.2	47.8	111.2	21.8	8.0
	28		North Shield	45.5	45.5	1.1	23.9	42.8	17.8	6.3
	28		South Shield	50.1	50.1	1.0	56.3	88.0	21.3	7.9
	29		North Shield	42.1	42.1	1.0	36.4	44.2	17.9	6.6
	29		South Shield	57.1	57.1	1.0	26.0	46.5	21.0	7.7
	30		North Shield	38.6	38.6	1.0	31.5	57.3	18.5	6.8
	30		South Shield	53.0	53.0	1.0	46.2	97.8	21.7	8.0
	31		North Shield	37.4	36.8	1.0	39.2	55.9	18.6	6.8
	31		South Shield	50.2	50.2	1.0	54.5	88.0	21.9	8.0
	32		North Shield	35.7	34.5	1.1	24.1	57.4	17.7	6.3
	32		South Shield	57.2	57.2	1.0	81.8	112.8	20.9	7.7
	33		North Shield	32.9	32.9	1.2	29.1	84.4	17.3	6.1
	33		South Shield	49.1	49.1	1.0	59.3	105.4	20.1	7.2
	34		North Shield	47.8	47.8	1.1	22.6	41.7	18.0	6.4
	34		South Shield	56.2	56.2	1.0	47.8	79.7	21.5	8.1
	35		North Shield	39.1	39.1	1.2	24.3	62.2	18.1	6.5
	35		South Shield	63.4	63.4	1.0	51.2	87.8	21.6	8.0
	36		North Shield	34.5	34.5	1.0	29.2	45.4	17.7	6.4
	36		South Shield	50.7	50.7	1.0	58.0	112.6	21.1	7.9
	37		North Shield	39.7	39.7	1.2	29.2	60.2	17.7	6.3
	37		South Shield	54.9	54.9	1.0	41.3	87.1	21.4	7.9
	38		North Shield	39.2	39.2	1.1	27.6	62.9	17.6	6.3
	38		South Shield	52.9	52.9	1.0	49.0	103.1	21.3	7.9
	39		North Shield							
	39		South Shield							
	40		North Shield							
	40		South Shield							
	41		North Shield	39.2	39.2	1.3	37.5	58.7	17.5	6.2
	41		South Shield	41.1	40.6	1.1	67.8	121.4	20.9	7.7
	42		North Shield	34.0	34.0	1.1	40.0	66.8	17.0	6.1
	42		South Shield	44.7	44.7	1.1	56.1	86.2	20.2	7.5
	43		North Shield	45.5	45.5	1.0	24.1	45.0	17.7	6.4
	43		South Shield	57.3	57.3	1.0	45.5	59.1	21.6	7.9
	44		North Shield	47.8	47.8	1.1	29.5	46.0	18.5	6.7
	44		South Shield	63.3	63.3	1.0	22.6	85.2	21.8	8.1
	45		North Shield	36.3	36.3	1.3	24.2	83.5	17.8	6.3
	45		South Shield	45.1	45.1	1.1	58.1	157.6	21.2	7.8
	46		North Shield	47.8	47.8	1.0	27.6	40.0	18.7	6.8
	46		South Shield	60.1	60.1	1.0	38.4	87.8	21.8	8.1

Table C-48. Test 48 north and south shield pressure-time values for sheep numbers 750 and 751.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/27/97	47	60	North Shield	40.9	40.9	1.2	27.6	46.0	17.8	6.4
	47		South Shield	60.6	60.6	1.0	45.2	69.7	21.2	7.9
	48		North Shield	42.6	42.6	1.0	26.2	63.0	17.7	6.4
	48		South Shield	51.9	51.9	1.0	55.5	111.3	21.2	7.9
	49		North Shield	47.9	47.9	1.0	27.6	44.1	17.7	6.4
	49		South Shield	56.3	56.3	1.0	54.2	87.1	21.2	7.9
	50		North Shield	43.2	43.2	0.9	31.8	48.7	18.0	6.6
	50		South Shield	66.7	66.7	1.0	26.1	87.7	21.6	8.0
Mean				46.3	46.2	1.0	37.7	71.5	19.6	7.2
SD				7.6	7.8	0.1	13.9	23.7	1.8	0.8

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-49. Test 49north and south shield pressure-time values for sheep numbers 752 and 753.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/4/97	1	60	South Shield	56.1	56.1	1.0	24.0	55.4	20.9	7.8
	1		North Shield	39.1	39.1	1.2	36.5	61.6	17.6	6.3
	2		North Shield	39.7	39.7	1.2	29.1	69.5	17.6	6.3
	2		South Shield	48.4	48.4	1.0	33.8	60.4	20.8	7.6
	3		North Shield	39.7	39.7	1.2	38.5	55.1	17.4	6.2
	3		South Shield	52.0	8.4	1.0	33.6	60.0	20.2	7.2
	4		North Shield	38.6	38.6	1.2	36.8	54.3	17.3	6.2
	4		South Shield	51.7	51.7	1.0	33.7	59.9	20.8	7.7
	5		North Shield	36.5	35.3	1.2	36.8	64.2	17.5	6.3
	5		South Shield	47.9	47.9	1.2	45.9	68.0	21.1	7.7
	6		North Shield	43.2	43.2	1.1	24.2	54.8	18.0	6.5
	6		South Shield	54.5	54.5	1.0	21.2	60.6	21.4	7.9
	7		North Shield	39.5	39.5	1.0	29.7	47.4	17.3	6.2
	7		South Shield	48.1	48.1	1.1	32.7	92.1	20.7	7.4
	8		North Shield	43.2	43.2	1.1	21.2	54.0	18.3	6.6
	8		South Shield	59.3	59.3	1.0	32.5	60.2	21.4	7.9
	9		North Shield	40.4	40.4	1.2	27.7	65.6	18.6	6.7
	9		South Shield	58.4	58.4	1.0	33.9	61.5	21.7	8.1
	10		North Shield	40.9	40.9	1.0	27.4	47.8	18.0	6.5
	10		South Shield	60.6	60.6	1.0	24.8	66.0	21.3	7.9
	11		North Shield	45.5	45.5	1.2	29.0	51.9	17.8	6.4
	11		South Shield	52.9	52.9	1.1	46.0	87.5	21.6	7.9
	12		North Shield	42.1	42.1	1.0	22.4	48.1	18.2	6.5
	12		South Shield	52.7	52.7	1.0	55.7	75.2	21.0	7.6
	13		North Shield	43.2	43.2	1.2	37.0	42.8	17.8	6.4
	13		South Shield	63.9	63.9	1.0	44.7	67.8	21.3	7.9
	14		North Shield	42.7	42.7	1.1	24.1	46.6	17.4	6.3
	14		South Shield	51.7	51.7	1.0	47.4	87.8	20.8	7.6
	15		North Shield	44.9	44.9	1.1	24.3	56.1	17.7	6.3
	15		South Shield	63.3	63.3	1.0	19.8	58.3	21.3	7.9
	16		North Shield	45.5	45.5	1.0	24.9	45.6	18.0	6.5
	16		South Shield	56.7	56.7	1.0	39.2	85.3	21.3	7.9
	17		North Shield	39.1	39.1	1.0	24.4	47.0	17.9	6.5
	17		South Shield	49.5	49.5	1.0	55.6	94.6	20.7	7.6
	18		North Shield	39.1	39.1	1.2	29.1	48.8	17.3	6.2
	18		South Shield	47.9	47.9	1.2	54.7	97.7	21.0	7.7
	19		North Shield	38.6	38.6	1.0	37.1	49.4	17.9	6.4
	19		South Shield	51.2	51.2	1.0	55.8	94.2	21.2	7.9
	20		North Shield	43.8	43.8	1.1	27.7	49.3	17.5	6.3
	20		South Shield	50.5	50.5	1.0	54.3	72.5	21.1	7.8
	21		North Shield	48.9	48.9	0.9	21.1	44.8	18.2	6.6
	21		South Shield	50.6	50.6	1.0	55.3	85.4	21.2	7.9
	22		North Shield	42.2	42.2	1.2	24.0	45.4	18.2	6.5
	22		South Shield	53.5	53.5	1.1	45.0	68.6	21.2	7.9
	23		North Shield	40.8	40.8	1.1	22.4	46.9	18.3	6.6
	23		South Shield	51.1	48.9	1.1	57.7	76.9	21.5	7.9

Table C-49. Test 49north and south shield pressure-time values for sheep numbers 752 and 753.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/4/97	24	60	North Shield	49.5	49.5	1.1	24.1	42.0	17.9	6.4
	24		South Shield	55.1	55.1	1.1	45.1	78.0	21.1	7.8
	25		North Shield	45.5	45.5	1.1	21.5	44.2	17.9	6.4
	25		South Shield	47.9	47.9	1.2	54.5	85.5	21.2	7.7
	26		North Shield	45.5	45.5	1.2	22.4	50.4	17.9	6.4
	26		South Shield	45.7	45.7	1.0	48.6	86.2	21.0	7.7
	27		North Shield							
	27		South Shield							
	28		North Shield	39.7	35.7	1.1	24.8	46.5	17.5	6.2
	28		South Shield	49.6	49.6	1.1	45.0	85.4	20.3	7.4
	29		North Shield	40.9	40.9	1.2	26.4	45.0	17.7	6.3
	29		South Shield	44.5	44.5	1.1	55.5	87.8	20.7	7.5
	30		North Shield	42.0	42.0	1.0	24.2	46.0	17.6	6.4
	30		South Shield	55.6	55.6	1.0	32.7	74.2	20.9	7.7
	31		North Shield	42.1	42.1	1.0	22.5	47.0	17.9	6.4
	31		South Shield	56.8	56.8	1.0	32.8	69.4	21.2	7.9
	32		North Shield	39.7	39.7	1.2	32.1	52.3	17.8	6.3
	32		South Shield	47.9	47.9	1.1	55.7	75.0	21.1	7.8
	33		North Shield	43.2	43.2	1.0	22.4	42.8	18.3	6.7
	33		South Shield	59.5	59.5	1.0	21.2	60.7	21.0	7.8
	34		North Shield	38.6	38.0	1.2	39.9	44.9	18.1	6.4
	34		South Shield	52.9	52.9	1.1	44.6	85.2	20.9	7.7
	35		North Shield	38.6	38.6	1.2	21.5	54.7	17.8	6.3
	35		South Shield	44.7	44.7	1.0	46.3	95.5	20.7	7.7
	36		North Shield	44.9	44.9	1.2	19.8	63.7	18.5	6.5
	36		South Shield	57.8	57.8	1.0	46.1	92.8	21.1	7.8
	37		North Shield	45.6	45.6	1.0	22.5	44.4	18.2	6.6
	37		South Shield	55.7	55.7	1.0	22.0	83.9	21.6	8.1
	38		North Shield	43.2	43.2	1.1	22.3	45.8	18.5	6.7
	38		South Shield	54.0	54.0	1.0	25.0	84.5	21.2	7.9
	39		North Shield	44.9	44.9	1.0	24.0	46.1	18.2	6.5
	39		South Shield	54.0	54.0	1.2	44.6	94.7	21.4	7.9
	40		North Shield	43.8	43.8	1.1	22.4	44.8	18.5	6.7
	40		South Shield	52.9	52.9	1.1	39.2	74.9	21.0	7.9
	41		South Shield	59.0	59.0	1.0	38.1	67.8	21.2	7.9
	42		North Shield	45.5	45.5	1.0	22.4	44.6	18.5	6.7
	42		South Shield	57.9	57.9	1.0	39.3	61.5	21.2	8.0
	43		North Shield	42.1	42.1	1.1	31.6	69.1	17.8	6.4
	43		South Shield	47.9	47.9	1.2	66.6	87.9	21.4	7.9
	44		North Shield	41.6	41.6	1.2	24.2	42.4	18.1	6.5
	44		South Shield	47.4	47.4	1.1	50.7	89.8	20.9	7.7
	45		North Shield	40.9	40.9	1.1	22.4	51.2	17.9	6.4
	45		South Shield	50.1	50.1	1.0	32.7	72.2	21.1	7.8
	46		North Shield	45.5	45.5	1.1	21.4	42.0	18.2	6.4
	46		South Shield	48.0	48.0	1.0	53.3	107.5	21.2	7.9
	47		North Shield	46.6	46.6	1.1	22.4	42.6	18.2	6.5

Table C-49. Test 49north and south shield pressure-time values for sheep numbers 752 and 753.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/4/97	47	60	South Shield	52.9	52.9	1.2	46.2	85.2	21.1	7.8
	48		North Shield	44.9	44.9	1.1	24.1	51.0	17.7	6.3
	48		South Shield	63.3	63.3	1.1	20.7	67.5	20.8	7.7
	49		North Shield	40.9	40.9	1.1	22.4	53.3	17.9	6.3
	49		South Shield	50.7	50.7	1.1	53.4	87.8	21.2	7.8
	50		North Shield	38.6	38.6	1.0	22.1	49.3	17.5	6.3
	50		South Shield	45.6	45.6	1.2	58.0	80.6	20.4	7.5
Mean				47.6	47.1	1.1	34.3	64.1	19.5	7.1
SD				6.7	7.8	0.1	12.3	17.4	1.6	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-50. Test 50 north and south shield pressure-time values for sheep numbers 754 and 755.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/6/97	1	60	North Shield	44.3	44.3	1.1	29.5	59.6	18.2	6.5
	1		South Shield	54.5	54.5	1.0	29.0	77.6	21.3	8.2
	2		North Shield	42.1	42.1	1.1	36.7	57.6	17.6	6.3
	2		South Shield	49.6	49.6	1.0	32.6	56.2	21.1	7.8
	3		North Shield	46.6	46.6	1.1	26.3	50.0	17.9	6.4
	3		South Shield	50.1	50.1	1.0	39.3	73.5	21.9	8.0
	4		North Shield	41.5	41.5	1.0	29.1	47.9	18.0	6.4
	4		South Shield	55.7	55.7	1.0	24.7	61.5	21.5	8.3
	5		North Shield							
	5		South Shield	55.7	55.7	1.0	31.6	67.8	22.1	8.2
	6		North Shield	39.8	39.8	1.0	39.2	61.1	18.0	6.5
	6		South Shield	54.6	54.6	1.0	32.5	49.4	21.5	8.0
	7		North Shield	43.2	43.2	1.1	36.8	62.1	17.6	6.4
	7		South Shield	56.7	56.7	1.0	32.9	58.1	21.4	7.9
	8		North Shield	40.9	40.9	1.0	26.4	47.4	17.9	6.5
	8		South Shield	51.3	51.3	1.0	32.6	77.8	21.6	8.0
	9		North Shield	41.6	41.6	1.0	24.3	73.4	17.9	6.5
	9		South Shield	55.0	55.0	1.2	28.0	74.5	21.3	7.8
	10		North Shield	45.5	45.5	1.0	27.6	62.6	17.9	6.5
	10		South Shield	55.1	55.1	1.0	32.8	76.7	21.3	8.1
	11		North Shield	38.0	38.0	1.0	26.8	45.1	17.5	6.3
	11		South Shield	58.5	58.5	1.0	39.2	48.9	20.9	7.9
	12		North Shield	45.5	45.5	1.1	37.0	42.8	17.5	6.2
	12		South Shield	44.7	44.7	1.0	54.2	88.0	21.6	8.1
	13		North Shield	43.2	43.2	1.0	21.5	62.2	17.4	6.3
	13		South Shield	50.2	50.2	1.0	32.7	77.8	21.4	8.0
	14		North Shield	43.8	43.8	1.1	24.3	62.2	17.6	6.3
	14		South Shield	52.9	52.9	1.0	39.0	77.8	21.4	8.0
	15		North Shield	42.0	42.0	1.0	21.2	62.3	18.1	6.5
	15		South Shield	53.4	53.4	1.0	47.7	55.2	21.7	8.1
	16		North Shield	36.3	36.3	1.0	24.4	55.4	17.5	6.3
	16		South Shield	48.6	48.6	1.0	45.0	88.0	21.0	7.9
	17		North Shield	39.7	39.7	1.0	27.5	48.0	17.5	6.3
	17		South Shield	50.7	50.7	1.0	32.5	88.1	21.3	7.9
	18		North Shield	40.9	40.9	1.0	24.3	47.8	17.7	6.4
	18		South Shield	57.9	57.9	1.0	39.3	61.6	21.3	8.0
	19		North Shield	44.3	44.3	0.9	27.4	46.2	17.6	6.4
	19		South Shield	54.1	54.1	1.0	44.8	79.2	21.4	8.0
	20		North Shield	44.4	44.4	1.0	29.1	46.2	17.6	6.3
	20		South Shield	54.5	54.5	1.0	45.0	61.6	21.3	7.9
	21		North Shield	42.0	42.0	0.9	24.4	44.9	17.2	6.2
	21		South Shield	49.6	49.6	1.0	47.8	77.8	21.4	8.0
	22		North Shield	39.7	39.7	0.9	24.4	63.3	17.3	6.3
	22		South Shield	50.1	50.1	1.0	45.0	88.0	21.2	7.9
	23		North Shield	40.3	40.3	1.0	24.3	47.8	17.4	6.3
	23		South Shield	50.6	50.6	1.1	45.2	93.1	21.2	7.9

Table C-50. Test 50 north and south shield pressure-time values for sheep numbers 754 and 755.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/6/97	24	60	North Shield	42.0	42.0	0.9	24.4	55.5	17.6	6.4
	24		South Shield	51.8	51.8	1.0	21.0	74.2	21.7	8.1
	25		North Shield	46.6	46.6	1.0	19.6	48.1	17.6	6.4
	25		South Shield	53.3	53.3	1.0	45.7	94.4	21.9	8.1
	26		North Shield	38.6	38.6	1.0	22.1	62.0	17.8	6.4
	26		South Shield	51.1	51.1	1.0	47.8	60.2	21.4	7.9
	27		North Shield	36.3	36.3	1.1	37.1	67.4	17.3	6.1
	27		South Shield	45.5	45.5	1.1	59.1	86.4	20.9	7.6
	28		North Shield	43.3	43.3	1.0	19.6	62.4	18.3	6.7
	28		South Shield	57.8	57.8	1.0	32.4	76.3	21.8	8.1
	29		North Shield	38.3	38.3	1.1	22.6	56.1	18.1	6.5
	29		South Shield	56.8	56.8	1.0	23.6	85.7	21.4	8.0
	30		North Shield	43.8	43.8	0.9	22.3	48.1	17.7	6.4
	30		South Shield	55.1	55.1	1.0	54.8	93.9	21.3	7.9
	31		North Shield	43.8	43.8	0.9	24.2	44.5	17.6	6.3
	31		South Shield	57.2	57.2	0.9	39.0	84.4	21.2	7.9
	32		North Shield	46.6	46.6	0.9	21.3	40.2	18.2	6.6
	32		South Shield	57.3	57.3	1.0	24.5	138.1	21.1	7.8
	33		North Shield	38.6	38.0	1.1	24.9	67.4	18.6	6.7
	33		South Shield	52.9	52.9	1.0	44.8	97.3	21.7	8.0
	34		North Shield	48.0	48.0	1.2	21.2	51.2	18.3	6.6
	34		South Shield	62.8	62.8	1.2	32.9	85.4	20.9	7.9
	35		North Shield	49.6	49.6	1.2	21.3	44.8	18.3	6.4
	35		South Shield	55.6	55.6	1.0	46.1	75.0	21.2	7.9
	36		North Shield	41.5	41.5	1.0	28.0	44.8	18.1	6.5
	36		South Shield	56.8	56.8	1.0	46.1	77.3	20.9	7.9
	37		North Shield	39.8	39.8	1.2	38.0	46.6	18.1	6.4
	37		South Shield	55.1	55.1	1.0	46.3	85.4	21.0	7.8
	38		North Shield	0.6	0.6	0.1	0.0	0.0	0.0	0.0
	38		South Shield	0.4	0.4	0.0	0.0	0.0	0.0	0.1
	39		North Shield	44.4	44.4	1.1	22.5	53.2	18.9	6.7
	39		South Shield	56.8	56.8	1.0	39.4	85.6	21.6	8.0
	40		North Shield	44.3	44.3	1.0	28.5	44.3	18.1	6.5
	40		South Shield	51.6	51.6	1.0	46.8	83.4	21.0	7.7
	41		North Shield	44.3	43.8	1.0	22.5	44.2	18.1	6.5
	41		South Shield	48.6	48.6	1.0	45.0	69.9	21.3	7.9
	42		North Shield	39.8	39.8	1.0	21.3	45.3	18.2	6.6
	42		South Shield	56.7	56.7	1.0	24.9	84.9	21.4	8.0
	43		North Shield	43.2	43.2	0.9	22.3	45.0	18.0	6.5
	43		South Shield	49.4	49.4	1.0	54.9	85.4	21.2	7.8
	44		North Shield	44.4	44.4	1.1	28.3	44.4	17.8	6.4
	44		South Shield	49.6	49.6	1.0	46.5	85.5	21.2	7.8
	45		North Shield	42.6	42.6	1.0	21.2	45.1	17.7	6.3
	45		South Shield	54.0	54.0	1.0	46.1	120.9	21.1	7.8
	46		North Shield	40.3	38.6	1.0	21.4	45.1	17.9	6.4
	46		South Shield	51.2	51.2	1.0	45.3	75.1	20.6	7.7

Table C-50. Test 50 north and south shield pressure-time values for sheep numbers 754 and 755.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/6/97	47	60	North Shield	44.3	44.3	1.0	24.2	45.9	18.3	6.5
	47		South Shield	54.7	54.7	1.0	56.7	111.7	21.3	7.9
	48		North Shield	38.6	38.6	1.0	22.3	45.2	18.2	6.5
	48		South Shield	56.9	56.9	1.0	46.7	83.0	20.3	7.0
	49		North Shield	45.0	45.0	1.1	24.0	44.2	18.2	6.5
	49		South Shield	60.5	60.5	1.0	45.1	85.8	20.9	7.7
	50		North Shield	45.0	45.0	1.1	21.2	45.2	18.2	6.5
	50		South Shield	46.2	46.2	1.1	46.5	88.0	21.3	7.9
Mean				47.1	47.0	1.0	32.5	64.8	19.2	7.0
SD				9.3	9.3	0.1	11.4	21.3	3.3	1.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-51. Test 51 north and south shield pressure-time values for sheep numbers 756 and 757.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/11/97	1	60	North Shield	38.6	38.6	1.0	24.1	46.0	17.6	6.4
	1		South Shield	45.8	45.8	1.1	27.8	70.1	21.4	7.9
	2		North Shield	34.0	34.0	1.3	44.7	85.4	17.0	6.0
	2		South Shield	40.1	40.1	1.2	33.2	70.5	21.1	7.7
	3		North Shield	43.3	43.3	1.1	21.5	61.7	17.4	6.3
	3		South Shield	49.6	49.6	1.0	29.7	56.1	21.1	7.8
	4		North Shield	37.4	37.4	1.0	24.1	54.6	17.7	6.4
	4		South Shield	46.3	46.3	1.0	21.4	68.1	21.2	8.0
	5		North Shield	44.9	44.9	1.0	24.1	65.8	17.0	6.2
	5		South Shield	46.8	46.8	1.0	33.6	60.3	20.8	7.7
	6		North Shield	40.9	40.9	1.1	24.0	61.5	17.4	6.3
	6		South Shield	48.9	48.9	1.0	33.9	74.9	21.7	8.0
	7		North Shield	40.3	40.3	1.1	21.9	47.1	17.6	6.3
	7		South Shield	45.6	45.6	1.0	32.4	73.6	21.0	7.7
	8		North Shield							
	8		South Shield							
	9		North Shield	43.2	43.2	1.2	21.1	63.3	17.2	6.1
	9		South Shield	53.5	53.5	1.0	20.7	68.7	21.1	7.9
	10		North Shield	45.5	45.5	1.2	23.8	44.7	17.6	6.3
	10		South Shield	45.8	45.8	1.0	45.0	58.5	21.7	8.0
	11		North Shield	46.6	46.6	1.0	22.4	45.0	17.9	6.5
	11		South Shield	56.2	56.2	0.9	21.9	69.0	21.9	8.2
	12		North Shield	51.8	51.8	1.0	21.3	40.6	17.6	6.3
	12		South Shield	55.1	55.1	1.1	32.3	60.5	21.3	7.9
	13		North Shield	40.9	40.9	1.2	22.4	54.4	17.5	6.2
	13		South Shield	42.4	42.4	1.0	33.7	83.4	21.2	7.8
	14		North Shield	39.7	39.7	1.2	27.4	47.1	18.0	6.4
	14		South Shield	51.9	51.9	1.0	22.6	68.2	21.4	7.9
	15		North Shield	38.6	38.6	1.2	22.3	44.5	17.1	6.0
	15		South Shield	45.1	6.5	1.1	48.5	84.7	21.0	7.7
	16		North Shield	43.2	43.2	1.0	22.3	47.2	17.8	6.4
	16		South Shield	47.9	47.9	1.0	53.5	101.6	21.4	8.0
	17		North Shield	40.3	40.3	1.2	22.5	57.9	17.6	6.3
	17		South Shield	47.4	46.3	1.0	71.5	95.7	21.3	8.0
	18		North Shield	41.5	41.5	1.2	23.8	60.3	17.4	6.2
	18		South Shield	46.2	46.2	1.0	53.9	94.6	21.3	7.9
	19		North Shield	47.3	47.3	1.1	22.1	41.7	17.8	6.4
	19		South Shield	46.3	46.3	1.1	55.7	74.8	21.4	8.0
	20		North Shield	44.5	44.5	1.0	36.7	42.6	18.2	6.6
	20		South Shield	47.9	47.9	1.0	39.3	74.8	21.6	8.0
	21		South Shield	53.5	53.5	1.0	44.9	83.6	21.4	7.9
	21		North Shield	39.1	39.1	1.1	22.3	65.0	17.4	6.2
	22		North Shield	34.0	34.0	1.2	37.4	74.5	16.7	5.9
	22		South Shield	42.5	42.5	1.0	54.8	86.6	19.9	7.3
	23		North Shield	39.2	39.2	1.3	24.3	54.9	17.0	6.1
	23		South Shield	45.7	45.7	1.0	25.3	93.5	20.7	7.8

Table C-51. Test 51 north and south shield pressure-time values for sheep numbers 756 and 757.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/11/97	24	60	North Shield	38.6	38.6	1.1	24.1	53.8	17.1	6.2
	24		South Shield	46.2	46.2	1.0	46.0	74.8	20.9	7.8
	25		North Shield	39.2	39.2	1.1	25.0	46.1	17.2	6.2
	25		South Shield	44.6	44.6	1.0	47.2	82.8	21.1	7.8
	26		North Shield	39.7	39.7	1.1	36.4	46.1	16.5	5.9
	26		South Shield	47.3	47.3	1.1	44.6	79.1	21.3	7.9
	27		North Shield	44.4	44.4	1.0	22.0	45.5	16.6	6.0
	27		South Shield	48.5	48.5	1.0	46.2	76.5	21.2	7.8
	28		North Shield	42.6	42.6	1.0	29.3	51.7	17.1	6.1
	28		South Shield	48.0	48.0	0.9	46.0	74.8	21.3	8.0
	29		North Shield	42.6	42.6	1.0	24.1	45.8	16.8	6.1
	29		South Shield	44.5	44.5	1.1	44.6	76.9	20.9	7.7
	30		North Shield	40.9	40.9	1.0	22.0	46.3	17.0	6.2
	30		South Shield	45.8	45.8	1.1	46.1	74.0	20.8	7.8
	31		North Shield	40.3	40.3	1.2	24.0	55.6	17.1	6.0
	31		South Shield	46.8	46.8	1.0	59.0	77.9	20.9	7.7
	32		North Shield	39.2	39.2	1.0	24.0	46.2	17.2	6.2
	32		South Shield	47.3	47.3	1.0	23.2	86.2	20.9	7.8
	33		North Shield	44.4	44.4	1.3	22.4	55.8	17.4	6.1
	33		South Shield	46.2	46.2	1.0	33.9	77.0	21.2	7.9
	34		North Shield	40.3	40.3	1.1	25.0	44.8	17.2	6.2
	34		South Shield	46.2	46.2	1.0	42.4	86.4	21.1	7.8
	35		North Shield	39.7	39.7	1.1	27.2	46.1	17.5	6.3
	35		South Shield	51.2	51.2	1.0	21.9	74.8	21.3	7.9
	36		North Shield	44.3	44.3	1.2	23.4	50.3	17.2	6.2
	36		South Shield	47.3	45.7	1.0	53.4	60.6	21.0	7.9
	37		North Shield	38.6	38.6	1.0	24.2	55.3	16.7	6.0
	37		South Shield	50.1	50.1	1.0	25.1	76.9	20.6	7.7
	38		North Shield	43.2	43.2	1.0	21.4	53.8	17.1	6.2
	38		South Shield	47.4	47.4	1.1	44.6	85.8	21.0	7.8
	39		North Shield	47.8	47.8	1.2	22.2	42.7	17.4	6.2
	39		South Shield	54.0	54.0	1.0	32.6	55.1	21.3	7.9
	40		North Shield	40.9	40.9	1.0	24.1	50.8	17.5	6.3
	40		South Shield	51.3	51.3	1.0	23.1	74.8	21.0	7.8
	41		North Shield	40.9	40.9	1.0	27.3	53.9	17.2	6.3
	41		South Shield	46.8	46.8	1.0	45.1	75.0	21.1	7.9
	42		North Shield	44.9	44.9	1.0	24.0	45.7	17.6	6.3
	42		South Shield	52.4	52.4	1.0	19.8	74.9	21.1	8.0
	43		North Shield	44.9	44.9	1.0	23.9	46.3	17.1	6.2
	43		South Shield	47.4	47.4	1.0	46.4	59.7	20.9	7.8
	44		North Shield	38.6	38.6	1.1	24.0	45.2	16.7	6.0
	44		South Shield	40.9	40.9	1.0	58.9	85.3	20.6	7.6
	45		North Shield	42.0	42.0	1.1	23.9	62.6	17.1	6.1
	45		South Shield	48.0	48.0	1.0	32.8	69.4	20.1	7.1
	46		North Shield	40.9	40.9	1.1	22.2	46.1	17.5	6.2
	46		South Shield	51.3	51.3	1.1	29.6	84.1	21.0	7.8

Table C-51. Test 51 north and south shield pressure-time values for sheep numbers 756 and 757.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/11/97	47	60	North Shield	42.1	42.1	1.1	27.5	44.7	17.2	6.2
	47		South Shield	46.9	45.8	1.0	33.4	59.8	20.8	7.8
	48		North Shield	41.4	41.4	1.1	19.6	42.5	17.3	6.2
	48		South Shield	47.4	47.4	1.0	32.4	81.8	20.6	7.7
	49		North Shield	42.0	42.0	1.1	27.4	42.5	17.5	6.3
	49		South Shield	53.5	53.5	1.0	19.7	59.7	20.8	7.8
	50		North Shield	46.6	46.6	1.0	21.0	42.6	17.6	6.3
	50		South Shield	49.6	49.6	1.0	21.0	85.3	21.0	7.8
Mean				44.8	44.4	1.1	31.4	63.4	19.2	7.0
SD				4.6	6.0	0.1	11.5	15.7	1.9	0.8

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-52. Test 52 north and south shield pressure-time values for sheep numbers 758 and 759.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/13/97	1	60	North Shield	40.9	40.9	0.9	24.0	57.2	17.3	6.3
	1		South Shield							
	2		North Shield	41.0	41.0	1.1	29.1	45.7	16.8	6.1
	2		South Shield							
	3		North Shield	42.6	42.6	1.0	22.3	54.6	16.8	6.0
	3		South Shield							
	4		North Shield	40.9	40.9	1.0	24.2	54.3	17.2	6.2
	4		South Shield							
	5		North Shield	39.7	39.7	1.3	24.3	54.3	16.5	5.9
	5		South Shield							
	6		North Shield	40.5	40.5	1.0	22.0	64.7	17.2	6.3
	6		South Shield							
	7		North Shield	38.6	38.6	1.1	23.9	55.4	17.3	6.2
	7		South Shield							
	8		North Shield	41.0	41.0	1.0	24.1	56.0	17.0	6.2
	8		South Shield							
	9		North Shield	44.9	44.9	0.9	24.0	57.2	17.3	6.3
	9		South Shield							
	10		North Shield	44.3	44.3	0.9	24.1	57.1	17.7	6.4
	10		South Shield							
	11		North Shield	41.4	41.4	1.0	24.1	53.7	17.6	6.3
	11		South Shield							
	12		North Shield	40.9	40.9	1.0	28.5	56.3	17.3	6.3
	12		South Shield							
	13		North Shield	40.3	40.3	1.0	24.2	43.6	16.9	6.1
	13		South Shield							
	14		North Shield	39.8	39.8	1.2	26.6	57.7	16.9	6.0
	14		South Shield							
	15		North Shield	42.6	42.6	1.0	19.6	45.8	17.8	6.3
	15		South Shield							
	16		North Shield	42.1	42.1	1.1	21.3	43.8	17.6	6.3
	16		South Shield							
	17		North Shield	45.5	45.5	1.2	22.3	47.0	17.7	6.3
	17		South Shield							
	18		North Shield	39.8	39.8	1.2	23.8	89.0	17.4	6.2
	18		South Shield							
	19		North Shield	41.6	41.6	1.0	24.0	46.2	17.3	6.2
	19		South Shield							
	20		North Shield	44.9	44.9	1.1	23.6	47.6	17.3	6.1
	20		South Shield							
	21		North Shield							
	21		South Shield							
	22		North Shield	42.2	42.2	1.0	21.0	43.7	17.7	6.4
	22		South Shield	50.7	50.7	1.0	46.0	68.8	20.9	7.8
	23		North Shield	41.0	41.0	1.0	28.1	43.6	17.7	6.4
	23		South Shield	53.0	53.0	1.0	46.9	58.0	20.6	7.7

Table C-52. Test 52 north and south shield pressure-time values for sheep numbers 758 and 759.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	24		North Shield	48.5	48.5	1.1	19.7	43.5	17.8	6.4
	24		South Shield	49.1	49.1	1.1	32.8	59.9	20.9	7.8
	25		North Shield	45.0	45.0	1.0	24.0	45.8	17.3	6.2
	25		South Shield	53.0	53.0	1.0	32.5	59.8	20.6	7.7
	26		North Shield	39.8	39.8	1.0	36.1	46.7	16.8	6.0
	26		South Shield	43.0	43.0	1.1	44.7	59.7	20.7	7.6
	27		North Shield	43.2	43.2	1.0	24.1	46.7	17.3	6.1
	27		South Shield	52.4	52.4	1.0	27.7	70.1	21.0	7.8
	28		North Shield	40.4	40.4	1.1	24.4	57.7	16.6	5.9
	28		South Shield	49.1	49.1	1.0	53.3	69.4	20.8	7.7
	29		North Shield	38.0	38.0	0.9	23.5	55.8	17.0	6.2
	29		South Shield	51.9	51.9	1.0	39.2	59.8	21.2	7.9
	30		North Shield	43.2	43.2	1.1	22.3	54.9	17.5	6.3
	30		South Shield	51.8	51.8	1.0	33.8	73.6	21.2	7.9
	31		North Shield							
	31		South Shield	46.9	46.9	1.0	24.5	76.1	20.9	7.8
	32		South Shield	44.7	44.7	1.0	46.1	75.0	20.8	7.8
	32		North Shield	43.2	43.2	1.1	22.3	45.9	17.1	6.1
	33		North Shield	40.3	40.3	1.0	29.2	46.7	16.8	6.0
	33		South Shield	51.3	51.3	1.0	32.8	59.8	20.7	7.7
	34		South Shield	53.0	53.0	1.0	32.5	68.8	21.2	8.0
	34		North Shield	43.2	43.2	0.9	24.7	45.9	17.4	6.3
	35		North Shield	40.4	40.4	1.0	23.8	44.2	17.6	6.3
	35		South Shield	49.0	49.0	1.0	22.7	84.9	21.3	7.9
	36		South Shield	51.2	51.2	1.1	31.5	83.7	20.2	7.6
	36		North Shield	38.6	38.6	1.0	22.3	46.6	16.9	6.0
	37		North Shield	43.8	43.8	0.9	22.0	46.9	16.8	6.1
	37		South Shield	49.7	49.7	1.0	19.6	71.8	20.8	7.8
	38		South Shield	44.7	44.7	1.0	46.7	85.2	20.7	7.6
	38		North Shield	40.4	40.4	1.2	37.0	70.6	16.3	5.8
	39		North Shield	47.9	47.9	0.9	19.7	41.6	17.1	6.3
	39		South Shield	53.5	53.5	0.9	31.2	59.8	21.9	8.2
	40		South Shield	50.2	50.2	1.1	39.2	70.1	20.7	7.7
	40		North Shield	39.1	39.1	0.9	23.8	55.7	16.5	6.0
	41		North Shield	40.9	40.9	1.1	21.0	57.6	16.4	5.9
	41		South Shield	46.7	46.7	1.0	32.7	73.0	20.2	7.4
	42		South Shield	49.7	49.7	1.0	44.7	61.5	20.5	7.7
	42		North Shield	44.3	44.3	1.0	21.6	46.5	17.1	6.2
	43		North Shield	42.1	42.1	1.0	22.2	46.7	17.4	6.2
	43		South Shield	48.4	48.4	1.0	32.8	87.8	20.9	7.6
	44		South Shield	50.7	50.7	1.1	53.4	84.8	20.6	7.7
	44		North Shield	40.5	40.5	1.0	23.6	55.2	17.9	6.5
	45		North Shield	37.5	35.2	1.1	42.5	46.6	17.2	6.1
	45		South Shield	47.9	47.9	1.0	48.2	84.9	20.5	7.5
	46		South Shield	47.5	47.5	1.0	44.5	84.2	21.1	7.9
	46		North Shield	42.0	42.0	1.1	32.0	48.0	17.5	6.3

Table C-52. Test 52 north and south shield pressure-time values for sheep numbers 758 and 759.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
	47		North Shield	41.5	41.5	1.0	19.6	50.8	17.2	6.2
	47		South Shield	44.1	44.1	1.1	46.2	86.3	20.3	7.6
	48		South Shield	41.9	41.9	1.0	53.4	86.3	20.4	7.7
	48		North Shield	40.9	40.9	1.0	22.2	45.9	16.7	6.0
	49		North Shield	42.7	42.7	1.1	21.3	45.1	18.0	6.4
	49		South Shield	48.0	48.0	1.0	32.5	66.1	20.7	7.8
	50		North Shield							
	50		South Shield							
Mean				44.5	44.5	1.0	29.7	59.2	18.5	6.8
SD				4.4	4.5	0.1	9.5	13.8	1.8	0.8

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-53. Test 53 north and south shield pressure-time values for sheep numbers 760 and 761.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/18/97	1	60	North Shield	42.0	42.0	0.9	31.6	46.7	18.1	6.5
	1		South Shield	49.7	49.7	1.0	27.1	70.2	21.4	8.0
	2		North Shield	39.2	39.2	1.3	39.8	54.8	17.5	6.2
	2		South Shield	53.5	53.5	1.0	27.0	69.6	21.1	8.1
	3		North Shield	44.3	44.3	1.1	22.0	63.6	17.8	6.3
	3		South Shield	56.3	56.3	1.0	27.0	55.5	21.4	8.1
	4		North Shield	36.3	36.3	1.2	36.7	56.2	17.6	6.3
	4		South Shield	40.9	40.9	1.0	32.5	60.5	20.9	7.7
	5		North Shield	36.3	36.3	0.9	31.8	57.2	17.0	6.2
	5		South Shield	44.5	44.5	1.0	32.6	92.4	20.5	7.6
	6		North Shield	38.0	38.0	0.9	24.5	54.6	17.0	6.1
	6		South Shield	45.8	45.8	1.1	33.5	59.7	20.6	7.5
	7		North Shield	45.5	45.5	1.1	36.7	56.4	17.9	6.4
	7		South Shield	53.3	53.3	1.2	32.3	68.0	21.3	7.8
	8		North Shield	39.7	39.7	1.1	36.7	57.2	17.9	6.4
	8		South Shield	46.9	46.9	1.0	45.0	77.1	22.1	8.2
	9		North Shield	34.0	34.0	1.1	39.5	48.4	16.2	5.7
	9		South Shield	39.6	39.6	1.1	33.4	73.2	19.7	7.5
	10		North Shield	35.1	35.1	1.1	36.7	47.3	16.8	6.0
	10		South Shield	39.2	39.2	1.1	47.2	77.6	20.7	7.5
	11		North Shield	42.1	42.1	1.1	22.3	54.8	17.4	6.2
	11		South Shield	45.2	45.2	1.0	46.1	74.8	20.7	7.7
	12		North Shield	43.2	43.2	1.1	19.8	43.7	17.4	6.2
	12		South Shield	49.7	49.7	1.1	46.1	74.9	21.2	7.8
	13		North Shield	40.9	40.3	1.1	21.4	47.0	17.1	6.0
	13		South Shield	51.3	51.3	1.0	32.9	61.4	20.8	7.7
	14		North Shield	42.1	42.1	1.1	24.0	45.9	17.7	6.4
	14		South Shield	58.0	58.0	1.0	32.4	73.7	21.1	7.8
	15		North Shield	38.6	38.6	0.9	31.7	48.1	17.5	6.4
	15		South Shield	47.4	47.4	1.0	39.4	68.2	21.0	7.8
	16		North Shield	41.4	41.4	1.0	22.3	46.9	17.0	6.0
	16		South Shield	45.2	45.2	1.1	47.0	87.6	20.8	7.6
	17		North Shield	35.7	35.2	1.2	36.9	47.7	17.1	6.0
	17		South Shield	46.9	46.9	1.0	57.7	77.2	20.7	7.6
	18		North Shield	42.7	42.7	1.1	27.2	57.1	17.1	6.1
	18		South Shield	52.9	52.9	1.0	44.9	74.8	21.0	7.7
	19		North Shield	41.4	41.4	1.0	31.4	44.7	16.6	5.9
	19		South Shield	44.0	44.0	1.1	56.7	104.8	20.6	7.5
	20		North Shield	38.6	38.6	1.2	36.8	46.7	16.5	5.8
	20		South Shield	41.3	41.3	1.1	53.4	75.1	20.5	7.6
	21		North Shield	40.3	40.3	1.1	22.2	44.7	17.3	6.2
	21		South Shield	50.2	50.2	1.0	32.6	59.8	21.4	8.0
	22		North Shield	43.8	43.8	1.0	23.4	73.1	18.1	6.5
	22		South Shield	47.5	47.5	1.0	57.9	77.0	21.1	7.8
	23		North Shield	43.2	43.2	1.2	22.1	62.5	17.4	6.3
	23		South Shield	51.3	51.3	1.0	32.4	88.1	21.0	7.8

Table C-53. Test 53 north and south shield pressure-time values for sheep numbers 760 and 761.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/18/97	24	60	North Shield	38.6	38.6	1.1	22.3	69.3	17.6	6.3
	24		South Shield	49.1	49.1	1.0	32.9	69.6	20.6	7.7
	25		North Shield	36.3	36.3	1.1	31.7	44.6	17.3	6.2
	25		South Shield	43.9	43.9	1.1	46.1	74.9	20.4	7.4
	26		North Shield	42.1	42.1	1.2	24.2	66.5	17.1	6.0
	26		South Shield	51.9	51.9	0.9	31.4	85.1	21.2	7.8
	27		North Shield	40.9	40.9	1.1	24.2	46.1	17.3	6.2
	27		South Shield	51.2	51.2	1.0	32.4	77.0	20.7	7.7
	28		North Shield	41.6	41.6	0.9	24.4	47.0	17.2	6.3
	28		South Shield	52.5	52.5	0.9	32.5	75.1	21.5	8.0
	29		North Shield	43.2	43.2	0.9	24.3	47.2	17.1	6.2
	29		South Shield	49.1	49.1	0.9	45.0	71.5	21.0	7.9
	30		North Shield	41.5	41.5	0.9	31.7	46.6	17.2	6.3
	30		South Shield	47.9	47.9	1.1	46.0	68.8	20.8	7.9
	31		North Shield	39.7	39.7	0.9	24.0	46.2	16.8	6.2
	31		South Shield	48.0	48.0	1.0	32.8	87.8	20.7	7.8
	32		North Shield	39.8	39.8	0.9	23.3	56.4	16.8	6.1
	32		South Shield	47.1	47.1	1.0	50.3	77.2	20.6	7.5
	33		North Shield	40.9	40.9	1.0	24.0	43.5	17.1	6.1
	33		South Shield	47.5	47.5	1.0	47.2	85.2	20.8	7.7
	34		North Shield	45.0	45.0	1.1	22.2	39.9	17.1	6.1
	34		South Shield	52.5	52.5	1.0	24.5	85.1	20.4	7.6
	35		North Shield	43.2	43.2	1.0	22.3	45.3	17.7	6.4
	35		South Shield	50.2	50.2	0.9	53.8	77.1	21.1	7.9
	36		North Shield	45.5	45.5	1.1	24.3	55.0	17.5	6.3
	36		South Shield	49.1	49.1	1.0	54.8	67.8	20.9	7.8
	37		North Shield	39.2	39.2	1.2	37.1	55.5	17.5	6.3
	37		South Shield	45.8	45.8	1.0	40.9	83.9	20.7	7.7
	38		North Shield	43.2	43.2	1.2	22.3	47.0	17.4	6.2
	38		South Shield	48.0	48.0	1.0	44.8	74.8	21.3	7.9
	39		North Shield	40.9	40.9	1.2	27.8	54.9	17.8	6.3
	39		South Shield	50.2	50.2	1.0	32.6	123.3	20.7	7.8
	40		North Shield	36.3	36.3	1.1	31.7	47.2	16.6	5.9
	40		South Shield	40.9	40.3	1.1	51.2	87.7	20.0	7.2
	41		North Shield	41.0	41.0	1.2	24.0	64.1	17.2	6.1
	41		South Shield	44.2	44.2	1.1	44.9	77.2	20.6	7.5
	42		North Shield	40.3	40.3	1.2	28.3	55.8	16.8	5.9
	42		South Shield	47.4	47.4	1.0	44.8	86.3	20.6	7.6
	43		North Shield	39.8	39.8	1.1	19.8	54.6	17.5	6.2
	43		South Shield	52.9	52.9	1.0	32.5	87.2	20.7	7.7
	44		North Shield	40.9	40.9	1.2	22.4	42.5	16.8	6.0
	44		South Shield	43.0	43.0	1.0	44.7	74.8	20.0	7.4
	45		North Shield	36.3	33.5	1.2	24.0	64.2	17.2	6.0
	45		South Shield	49.3	49.3	1.2	44.8	85.7	20.2	7.5
	46		North Shield	42.7	42.7	1.1	19.9	44.6	17.5	6.3
	46		South Shield	48.6	48.6	1.0	44.5	70.8	21.0	7.8

Table C-53. Test 53 north and south shield pressure-time values for sheep numbers 760 and 761.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/18/97	47	60	North Shield	43.3	43.3	1.1	22.2	63.9	18.0	6.4
	47		South Shield	49.0	49.0	1.0	32.6	73.8	20.9	7.7
	48		North Shield	44.4	44.4	1.2	21.1	51.7	18.0	6.4
	48		South Shield	51.7	51.7	1.0	32.5	62.2	21.0	7.9
	49		North Shield	41.5	41.5	1.0	21.0	42.5	17.7	6.4
	49		South Shield	47.2	47.2	1.0	32.9	84.5	20.8	8.0
	50		North Shield	45.6	45.6	1.1	21.7	46.1	17.5	6.3
	50		South Shield	45.1	45.1	1.0	53.5	69.6	20.7	7.7
Mean				44.4	44.4	1.1	33.7	64.4	19.1	7.0
SD				5.1	5.2	0.1	10.4	16.0	1.8	0.8

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-54. Test 54 north and south shield pressure-time values for sheep numbers 762 and 763.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/20/97	1	60	North Shield	43.8	43.8	0.9	42.5	79.2	20.5	7.4
	1		South Shield	52.4	52.4	1.0	24.3	57.6	21.0	7.7
	2		North Shield	46.6	46.6	0.9	36.6	45.9	20.7	7.8
	2		South Shield	50.7	50.7	1.0	26.9	51.6	21.1	7.9
	3		North Shield	39.8	39.8	0.9	22.3	46.0	16.5	6.0
	3		South Shield	51.8	51.8	1.0	26.9	57.7	20.7	7.6
	4		North Shield	39.1	39.1	0.9	22.0	46.0	16.5	6.0
	4		South Shield	54.6	54.6	1.0	21.3	47.1	20.6	7.7
	5		North Shield	40.3	40.3	0.9	21.5	50.0	17.2	6.3
	5		South Shield	51.2	51.2	1.0	31.7	55.5	20.6	7.7
	6		North Shield	42.0	42.0	1.1	22.3	45.9	17.0	6.1
	6		South Shield	57.4	57.4	1.0	20.4	60.5	21.0	7.8
	7		North Shield	39.8	39.8	0.9	21.2	54.5	16.8	6.1
	7		South Shield	53.0	53.0	1.0	31.8	55.5	20.7	7.7
	8		North Shield							
	8		South Shield							
	9		North Shield	38.0	38.0	1.1	22.4	46.9	16.0	5.7
	9		South Shield	43.5	43.5	1.1	32.8	96.1	20.4	7.5
	10		North Shield	39.7	39.7	0.9	31.3	56.1	16.7	6.2
	10		South Shield	48.5	48.5	1.0	31.6	70.7	20.8	7.8
	11		North Shield	33.4	32.8	1.1	23.8	84.8	16.1	5.7
	11		South Shield	46.9	46.9	1.0	32.4	62.7	19.8	7.3
	12		North Shield	39.3	39.3	1.2	28.5	70.0	16.5	5.9
	12		South Shield	48.5	48.5	1.0	22.8	73.5	20.8	7.7
	13		North Shield	39.1	39.1	0.9	31.5	46.0	16.7	6.1
	13		South Shield	55.2	55.2	1.0	31.8	74.2	20.6	7.7
	14		North Shield	41.4	41.4	1.0	21.2	44.3	16.3	5.9
	14		South Shield	47.4	47.4	1.1	32.8	70.7	20.3	7.6
	15		North Shield	44.3	44.3	1.0	21.9	45.7	17.1	6.2
	15		South Shield	50.8	50.8	1.0	21.3	71.6	21.4	7.9
	16		North Shield	42.7	42.7	1.2	20.9	69.2	17.0	6.1
	16		South Shield	57.4	57.4	1.0	31.7	56.8	20.8	7.8
	17		North Shield	42.6	42.6	0.9	22.2	46.0	17.5	6.3
	17		South Shield	50.1	50.1	1.0	31.7	56.1	21.1	7.7
	18		North Shield	38.0	38.0	0.9	36.5	44.8	16.4	5.9
	18		South Shield	48.4	48.4	1.0	21.1	59.9	20.2	7.5
	19		North Shield	42.0	42.0	1.1	22.3	65.2	16.6	5.9
	19		South Shield	48.9	48.9	1.0	32.6	59.8	20.8	7.6
	20		North Shield	39.1	39.1	1.0	31.3	46.1	16.7	6.1
	20		South Shield	45.7	45.7	1.0	36.0	86.4	20.3	7.6
	21		North Shield	40.9	40.9	0.9	22.3	45.1	16.3	5.9
	21		South Shield	46.8	46.8	1.0	32.6	56.6	20.6	7.7
	22		North Shield	41.5	41.5	0.9	21.0	45.6	16.6	6.0
	22		South Shield	48.0	48.0	1.0	24.0	70.7	20.7	7.7
	23		North Shield	40.5	40.5	0.9	24.3	56.6	16.4	6.0
	23		South Shield	47.3	47.3	1.0	31.4	76.2	20.5	7.6

Table C-54. Test 54 north and south shield pressure-time values for sheep numbers 762 and 763.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/20/97	24	60	North Shield	42.6	42.6	1.0	21.2	53.4	16.2	5.8
	24		South Shield	45.6	45.0	1.0	44.7	76.5	20.4	7.5
	25		North Shield	38.0	38.0	0.9	24.0	46.0	16.2	5.9
	25		South Shield	45.5	45.5	1.1	32.4	86.6	20.6	7.6
	26		North Shield	40.3	40.3	0.9	26.4	46.1	16.1	5.8
	26		South Shield	47.8	47.8	1.0	21.2	88.1	20.2	7.5
	27		North Shield	39.8	39.8	0.9	21.1	47.9	16.6	6.0
	27		South Shield	54.4	54.4	1.0	19.5	56.8	20.3	7.5
	28		North Shield	44.3	44.3	1.0	21.2	43.7	16.6	6.0
	28		South Shield	49.0	49.0	1.1	32.6	60.0	20.6	7.6
	29		North Shield	40.9	40.9	1.1	22.3	55.4	16.8	6.0
	29		South Shield	51.8	51.8	1.0	33.6	59.5	20.4	7.6
	30		North Shield	43.2	43.2	1.2	21.0	54.4	16.4	5.9
	30		South Shield	46.1	45.5	1.0	26.2	70.7	20.3	7.4
	31		North Shield	39.2	39.2	1.1	20.9	55.2	16.5	5.9
	31		South Shield	46.9	46.9	1.0	47.5	86.4	20.8	7.7
	32		North Shield	42.1	42.1	1.0	22.3	55.5	16.5	6.0
	32		South Shield	51.2	51.2	1.0	21.1	62.7	20.7	7.7
	33		North Shield	45.5	45.5	1.1	24.3	42.4	17.3	6.2
	33		South Shield	53.5	53.5	1.0	32.5	83.8	20.9	7.8
	34		North Shield	42.6	42.6	1.0	22.3	57.7	16.7	5.9
	34		South Shield	50.8	50.8	1.1	27.8	57.7	20.5	7.6
	35		North Shield	44.4	44.4	1.0	21.0	55.9	16.7	6.0
	35		South Shield	47.5	47.5	1.0	41.8	58.8	20.4	7.6
	36		North Shield	44.4	44.4	1.0	20.9	53.5	16.5	5.9
	36		South Shield	46.2	46.2	1.1	31.5	86.4	20.1	7.5
	37		North Shield	37.5	37.5	0.9	23.6	44.6	16.5	6.0
	37		South Shield	44.7	44.7	0.9	44.9	57.0	20.6	7.8
	38		North Shield	42.2	42.2	1.2	22.1	63.2	16.7	6.0
	38		South Shield	47.9	47.3	1.0	33.7	75.1	20.7	7.7
	39		North Shield	45.7	45.7	1.0	22.2	40.7	17.6	6.5
	39		South Shield	52.9	52.9	1.0	32.4	74.2	21.0	7.9
	40		North Shield	44.9	44.9	0.9	24.8	46.1	17.7	6.4
	40		South Shield	51.3	51.3	1.0	19.6	70.7	21.2	8.0
	41		North Shield	43.9	43.9	1.0	22.1	46.0	16.7	6.1
	41		South Shield	47.4	47.4	0.9	32.6	59.2	20.8	7.7
	42		North Shield	40.4	38.7	1.0	23.5	45.6	17.0	6.0
	42		South Shield	51.8	51.8	1.0	31.6	72.8	20.7	7.6
	43		North Shield	34.5	34.5	1.1	22.4	47.0	16.4	5.9
	43		South Shield	50.8	50.8	1.0	31.6	57.7	20.9	7.8
	44		North Shield	38.2	38.2	0.9	23.6	56.8	17.2	6.3
	44		South Shield	47.2	47.2	1.0	32.9	87.5	20.2	7.4
	45		North Shield	43.4	43.4	1.0	22.1	54.4	16.8	6.1
	45		South Shield	54.6	54.6	1.0	31.6	56.8	20.7	7.7
	46		North Shield	40.4	40.4	1.2	27.7	55.3	16.8	6.0
	46		South Shield	50.0	50.0	1.0	22.2	76.1	20.7	7.6

Table C-54. Test 54 north and south shield pressure-time values for sheep numbers 762 and 763.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/20/97	47	60	North Shield	42.2	42.2	1.1	23.1	47.0	16.7	6.0
	47		South Shield	47.4	47.4	1.0	32.6	81.5	20.3	7.2
	48		North Shield	45.0	45.0	1.0	22.2	42.0	17.2	6.2
	48		South Shield	55.5	55.5	1.0	20.4	57.4	20.5	7.6
	49		North Shield							
	49		South Shield							
	50		North Shield							
	50		South Shield							
Mean				45.6	45.5	1.0	27.1	59.8	18.7	6.9
SD				5.3	5.3	0.1	6.4	13.4	2.0	0.8

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-55. Test 55 north and south shield pressure-time values for sheep numbers 764 and 765.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/25/97	1	60	North Shield	36.3	36.3	1.2	46.9	95.5	22.0	7.8
	1		South Shield	43.1	43.1	1.0	34.2	88.2	20.8	7.5
	2		North Shield	43.2	43.2	1.0	53.3	86.3	22.6	8.1
	2		South Shield	48.0	48.0	1.0	34.3	71.7	21.7	8.0
	3		North Shield	46.1	46.1	1.0	37.6	69.4	22.4	8.1
	3		South Shield	44.2	44.2	1.0	34.3	76.1	21.9	8.0
	4		North Shield	51.8	51.8	0.9	35.4	74.5	22.3	7.9
	4		South Shield	49.7	49.7	1.0	33.8	58.8	21.6	7.8
	5		North Shield	46.7	46.7	1.0	36.4	74.4	21.6	7.6
	5		South Shield	53.6	53.6	1.0	27.0	62.4	21.6	7.8
	6		North Shield	42.0	42.0	1.0	49.1	94.1	22.1	7.8
	6		South Shield	46.9	46.9	1.0	33.9	51.5	21.1	7.7
	7		North Shield	44.4	44.4	1.0	44.9	87.4	22.3	7.9
	7		South Shield	46.9	45.8	1.0	43.3	62.4	22.3	8.2
	8		North Shield	47.8	47.8	1.0	36.5	62.2	22.7	8.1
	8		South Shield	50.9	50.9	1.0	43.5	73.8	21.9	8.0
	9		North Shield	47.2	47.2	1.0	37.1	62.1	22.4	8.0
	9		South Shield	48.1	48.1	1.0	23.6	73.8	21.4	7.9
	10		North Shield	38.0	38.0	1.1	46.1	70.4	21.7	7.7
	10		South Shield	62.5	48.7	0.1	12.3	37.8	3.6	7.8
	11		North Shield	39.8	39.8	1.1	46.1	93.1	21.8	7.7
	11		South Shield	44.8	44.8	1.0	38.2	75.0	20.7	7.5
	12		North Shield	40.9	40.9	1.0	40.1	86.1	21.9	7.7
	12		South Shield	53.6	53.6	0.9	34.3	60.2	21.5	7.9
	13		North Shield	42.0	42.0	1.0	36.3	87.2	22.4	8.1
	13		South Shield	61.9	53.6	0.1	14.4	41.6	3.6	8.1
	14		North Shield	43.9	43.9	1.0	40.7	89.1	21.9	7.7
	14		South Shield	46.4	46.4	1.0	24.7	77.0	21.4	7.7
	15		North Shield	39.1	39.1	1.0	42.5	76.5	22.2	7.9
	15		South Shield	100.2	100.2	0.1	4.6	20.3	6.5	7.8
	16		North Shield	48.4	48.4	1.0	45.0	58.8	22.9	8.2
	16		South Shield	61.3	61.3	1.0	20.0	59.1	22.2	8.1
	17		North Shield	44.9	44.9	1.0	42.7	85.6	22.2	7.8
	17		South Shield	48.6	48.6	1.0	46.0	76.0	21.8	7.9
	18		North Shield	39.8	39.8	1.0	47.1	85.7	21.6	7.6
	18		South Shield	41.5	41.5	1.0	46.4	97.4	21.1	7.6
	19		North Shield	47.8	47.8	1.0	41.7	66.4	22.2	8.0
	19		South Shield	43.7	43.7	1.0	57.2	113.8	21.7	8.0
	20		North Shield	43.2	43.2	1.1	44.3	87.7	22.1	8.0
	20		South Shield	47.0	47.0	1.0	48.2	87.0	21.7	7.9
	21		North Shield	37.5	37.5	1.2	46.2	93.3	21.4	7.5
	21		South Shield	45.0	45.0	1.2	55.7	113.4	20.8	7.5
	22		North Shield	46.7	46.7	1.0	36.3	74.5	22.1	7.8
	22		South Shield	49.8	49.8	1.0	57.2	86.0	21.8	8.0
	23		North Shield	47.2	47.2	1.0	25.3	67.6	21.4	7.6
	23		South Shield	42.5	39.8	1.1	55.4	121.1	21.4	7.8

Table C-55. Test 55 north and south shield pressure-time values for sheep numbers 764 and 765.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/25/97	24	60	North Shield	50.1	50.1	1.1	35.4	77.2	22.1	7.8
	24		South Shield	47.0	47.0	1.0	48.3	73.3	22.1	8.2
	25		North Shield	45.5	45.5	1.0	44.0	85.5	22.7	8.1
	25		South Shield	53.0	53.0	1.0	46.0	86.9	21.8	7.9
	26		North Shield	44.9	44.9	1.0	40.6	87.8	22.5	8.0
	26		South Shield	45.3	45.3	1.0	46.4	74.3	21.5	7.9
	27		North Shield	42.6	42.6	1.1	41.6	91.0	21.7	7.6
	27		South Shield	42.5	42.5	1.0	67.9	110.6	21.5	7.8
	28		North Shield	46.2	46.2	1.0	32.6	87.4	22.6	8.0
	28		South Shield	45.9	40.9	1.0	59.2	107.6	21.9	8.0
	29		North Shield	47.2	47.2	1.1	37.6	62.7	22.0	7.8
	29		South Shield	48.9	48.9	1.0	34.3	97.1	21.4	7.9
	30		North Shield	43.2	43.2	1.0	46.4	110.4	21.7	7.7
	30		South Shield	41.5	38.2	1.0	56.7	105.9	21.6	7.8
	31		North Shield	39.7	39.7	1.0	57.7	93.7	21.9	7.7
	31		South Shield	65.0	44.5	0.1	16.0	43.6	3.7	7.8
	32		North Shield	46.7	46.7	0.9	41.6	69.6	22.2	7.9
	32		South Shield	45.3	45.3	1.0	57.0	86.4	21.7	7.9
	33		North Shield	44.9	44.9	1.0	47.0	87.3	22.1	7.9
	33		South Shield	47.5	47.5	1.0	57.0	114.1	21.8	8.0
	34		North Shield	37.5	37.5	1.0	54.8	95.2	21.9	7.8
	34		South Shield	85.6	48.1	0.1	8.9	39.7	5.0	7.7
	35		North Shield	42.6	42.6	0.9	42.8	87.3	21.8	7.8
	35		South Shield	47.5	47.5	1.0	72.1	121.2	21.6	7.9
	36		North Shield	47.2	47.2	0.9	37.8	74.2	22.5	8.2
	36		South Shield	48.0	48.0	1.0	56.9	75.2	22.2	8.1
	37		North Shield	47.8	47.8	0.9	36.7	67.8	21.9	7.8
	37		South Shield	49.2	49.2	1.0	57.8	93.4	21.5	7.7
	38		North Shield	44.4	44.4	0.9	46.4	89.0	21.8	7.8
	38		South Shield	39.3	37.6	1.0	68.9	122.0	21.4	7.8
	39		North Shield	46.6	46.6	1.0	40.3	64.7	21.8	7.8
	39		South Shield	38.7	36.5	1.0	74.3	113.3	21.3	7.6
	40		North Shield	41.5	41.5	1.0	41.7	93.8	21.6	7.7
	40		South Shield	74.6	48.1	2.8	40.5	82.4	21.9	7.8
	41		North Shield	42.5	42.5	1.3	54.7	87.4	22.5	8.1
	41		South Shield	49.2	49.2	1.0	62.7	103.3	21.7	8.0
	42		North Shield	42.6	40.3	1.0	41.6	86.1	22.3	8.0
	42		South Shield	45.9	45.9	1.0	60.8	82.7	21.4	7.8
	43		North Shield	39.2	39.2	1.0	44.5	89.0	21.7	7.7
	43		South Shield	40.3	39.8	1.2	46.3	118.1	20.9	7.6
	44		North Shield	41.4	41.4	1.0	51.4	85.9	22.1	8.0
	44		South Shield	51.4	49.2	0.1	32.8	71.7	3.0	7.8
	45		North Shield	42.1	42.1	1.0	39.2	92.4	21.1	7.6
	45		South Shield							
	46		North Shield	52.0	52.0	1.0	41.5	73.9	22.2	8.0
	46		South Shield	52.5	52.5	1.0	45.7	85.4	22.0	8.1

Table C-55. Test 55 north and south shield pressure-time values for sheep numbers 764 and 765.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/25/97	47	60	North Shield	43.2	43.2	1.1	42.0	91.1	22.0	7.8
	47		South Shield	44.8	39.9	1.0	72.7	99.0	21.5	7.9
	48		North Shield	43.2	43.2	1.0	41.6	101.3	22.0	7.8
	48		South Shield	43.7	43.7	1.0	60.7	91.6	21.3	7.8
	49		North Shield	44.9	44.9	0.9	42.4	87.3	21.8	7.7
	49		South Shield	47.0	47.0	1.0	48.3	77.7	21.3	7.8
	50		North Shield	47.2	47.2	1.0	41.6	66.6	22.6	8.1
	50		South Shield	45.8	45.8	1.0	54.7	73.7	21.7	8.0
Mean				47.1	45.8	1.0	43.4	82.3	20.8	7.9
SD				8.9	7.0	0.3	12.9	18.9	4.3	0.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-56. Test 56 north and south shield pressure-time values for sheep numbers 766 and 767.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/27/97	1	60	North Shield	48.4	48.4	1.0	44.9	66.2	20.9	7.9
	1		South Shield	54.7	54.7	1.0	28.0	51.2	21.5	7.8
	2		North Shield	44.9	44.9	1.0	24.8	71.4	20.9	7.7
	2		South Shield	43.7	43.7	1.1	31.3	62.5	21.3	7.7
	3		North Shield	47.2	47.2	1.0	45.1	77.0	21.2	8.5
	3		South Shield	56.4	56.4	1.0	26.8	54.8	21.7	7.9
	4		North Shield	43.4	43.4	1.1	45.1	62.7	21.0	7.9
	4		South Shield	49.8	49.8	1.2	32.6	68.0	21.1	7.6
	5		North Shield	50.2	50.2	1.0	39.3	47.1	20.6	7.4
	5		South Shield	59.7	47.5	0.2	17.7	29.8	3.9	7.8
	6		North Shield	49.6	49.6	1.1	37.6	70.5	21.1	8.2
	6		South Shield	51.5	51.5	1.0	24.6	49.8	21.7	7.9
	7		North Shield	44.0	44.0	1.0	24.7	70.6	20.6	7.8
	7		South Shield	103.3	103.3	0.1	3.9	11.1	6.6	7.7
	8		North Shield	44.9	44.9	1.0	24.5	88.9	20.5	7.9
	8		South Shield	45.3	45.3	1.0	21.5	69.8	21.1	7.7
	9		North Shield	41.7	41.7	1.2	45.1	67.4	20.8	7.7
	9		South Shield	47.1	47.1	1.1	32.7	75.8	21.5	7.8
	10		North Shield	39.8	39.8	1.2	45.0	84.3	21.0	8.0
	10		South Shield	48.1	48.1	1.0	32.8	59.2	21.2	7.7
	11		North Shield	43.8	43.8	0.9	39.5	76.3	20.6	7.7
	11		South Shield	99.4	99.4	0.1	3.9	12.2	6.2	7.7
	12		North Shield	39.8	39.8	1.2	49.8	71.1	20.4	7.7
	12		South Shield	44.2	44.2	1.0	22.4	71.9	20.3	7.4
	13		North Shield	44.7	44.7	1.1	43.2	84.3	21.0	8.2
	13		South Shield	54.2	54.2	1.0	19.9	55.2	21.1	7.7
	14		North Shield	46.1	46.1	0.9	37.9	71.4	20.3	7.5
	14		South Shield	46.4	46.4	1.0	50.3	67.8	21.0	7.7
	15		North Shield	43.9	43.9	1.0	45.0	84.4	20.0	7.4
	15		South Shield	49.2	49.2	1.0	32.9	79.0	21.1	7.7
	16		North Shield	44.4	44.4	1.0	53.9	84.3	21.0	7.8
	16		South Shield	54.7	54.7	1.0	32.6	59.1	21.1	7.7
	17		North Shield	43.2	43.2	1.1	24.3	85.7	20.6	7.8
	17		South Shield	98.8	43.6	1.7	19.8	53.9	19.8	8.3
	18		North Shield	42.2	42.2	1.1	45.1	85.6	20.8	7.7
	18		South Shield	48.1	48.1	1.0	32.8	75.8	20.9	7.7
	19		North Shield	45.0	45.0	0.9	26.2	73.7	20.4	7.8
	19		South Shield	79.7	79.7	0.1	7.0	20.6	5.2	7.8
	20		North Shield	55.5	55.5	1.2	23.7	58.5	21.0	8.0
	20		South Shield	49.7	49.7	1.0	22.4	70.4	21.3	7.7
	21		North Shield	46.7	46.7	1.0	39.8	69.3	20.6	7.5
	21		South Shield	43.7	43.7	1.0	45.0	60.6	21.0	7.7
	22		North Shield	43.8	43.8	0.9	39.7	69.4	20.4	7.4
	22		South Shield	49.2	49.2	1.0	41.2	68.9	20.9	7.6
	23		North Shield	40.9	38.0	1.3	42.5	66.9	20.6	7.9
	23		South Shield	46.9	46.9	1.0	45.5	70.4	20.8	7.6

Table C-56. Test 56 north and south shield pressure-time values for sheep numbers 766 and 767.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/27/97	24	60	North Shield	48.4	48.4	0.9	24.2	56.1	21.4	8.0
	24		South Shield	50.8	50.8	1.0	33.7	74.9	21.4	7.8
	25		North Shield	46.2	46.2	1.0	39.7	57.4	20.8	7.7
	25		South Shield	47.0	47.0	1.1	51.2	59.9	21.1	7.7
	26		North Shield	46.7	46.7	0.9	39.4	68.9	21.1	8.0
	26		South Shield	53.8	53.8	1.0	20.4	84.1	21.0	7.7
	27		North Shield	50.2	50.2	0.9	26.6	57.5	21.1	7.6
	27		South Shield	51.4	51.4	1.0	32.8	77.0	21.1	7.7
	28		North Shield	54.6	54.6	0.9	23.8	57.3	20.9	7.8
	28		South Shield	49.9	49.9	1.0	24.2	79.9	21.0	7.7
	29		North Shield	49.3	49.3	1.2	37.0	85.4	20.9	7.8
	29		South Shield	48.7	48.7	1.1	39.5	76.5	20.9	7.7
	30		North Shield	38.6	36.9	1.1	46.1	74.8	20.3	7.3
	30		South Shield	39.8	39.8	1.2	57.0	86.8	20.4	7.2
	31		North Shield	47.2	47.2	0.9	24.3	57.4	21.1	8.2
	31		South Shield	49.2	49.2	1.0	53.9	87.9	21.2	7.8
	32		North Shield	46.1	46.1	1.0	40.0	63.6	20.4	7.8
	32		South Shield	39.2	39.2	1.0	53.8	77.2	21.1	7.7
	33		North Shield	43.2	43.2	0.9	40.0	85.7	21.2	8.5
	33		South Shield	97.2	97.2	0.2	6.9	24.7	6.5	9.5
	34		North Shield	46.6	46.6	1.0	37.0	56.7	21.5	7.7
	34		South Shield	45.9	45.9	1.0	45.0	61.5	20.8	7.5
	35		North Shield	46.1	46.1	1.2	45.2	74.5	21.4	7.6
	35		South Shield	51.4	51.4	1.1	57.9	84.5	21.1	7.7
	36		North Shield	42.6	42.6	1.0	39.4	86.5	20.2	7.5
	36		South Shield	42.0	42.0	1.1	54.2	85.3	20.1	7.2
	37		North Shield	44.9	44.9	1.0	25.9	85.8	20.9	7.6
	37		South Shield	46.4	46.4	1.0	24.2	60.0	20.8	7.5
	38		North Shield	54.7	54.7	1.0	24.4	57.5	21.1	7.6
	38		South Shield	49.7	49.7	1.0	22.2	87.9	20.8	7.7
	39		North Shield	47.2	47.2	1.1	37.2	57.4	21.1	8.1
	39		South Shield	53.6	53.6	1.0	45.0	81.6	21.0	7.7
	40		North Shield	47.2	47.2	1.1	44.9	55.8	20.8	7.4
	40		South Shield	43.1	43.1	1.0	46.2	88.0	20.5	7.6
	41		North Shield	43.8	43.8	1.0	40.0	87.5	20.4	8.1
	41		South Shield	50.3	50.3	1.0	26.9	60.7	20.6	7.6
	42		North Shield	42.1	42.1	1.2	45.2	96.5	20.7	7.5
	42		South Shield	55.3	53.6	0.1	15.2	39.9	3.3	7.6
	43		North Shield	45.0	45.0	1.0	37.0	55.9	20.5	7.5
	43		South Shield	47.0	46.4	1.0	45.0	61.5	21.1	7.7
	44		North Shield	43.2	43.2	1.0	24.3	64.4	21.0	7.8
	44		South Shield	48.1	48.1	1.0	45.0	59.9	20.9	7.5
	45		North Shield	47.8	47.8	1.0	37.0	49.5	21.0	7.8
	45		South Shield	49.8	49.8	1.0	44.6	70.1	20.9	7.7
	46		North Shield	49.0	49.0	1.1	23.9	56.7	21.0	7.8
	46		South Shield	50.8	50.8	1.0	38.1	86.3	20.8	7.6

Table C-56. Test 56 north and south shield pressure-time values for sheep numbers 766 and 767.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
3/27/97	47	60	North Shield	42.6	42.6	1.0	45.1	89.0	20.7	7.7
	47		South Shield	46.4	46.4	1.0	34.1	73.2	20.8	7.6
	48		North Shield	43.2	43.2	1.0	45.0	91.2	20.5	7.3
	48		South Shield	44.8	44.8	1.0	46.1	74.7	21.2	7.8
	49		North Shield							
	49		South Shield							
	50		North Shield							
	50		South Shield							
Mean				49.6	48.9	1.0	35.1	67.9	19.9	7.7
SD				11.8	10.6	0.2	11.9	16.6	3.8	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-57. Test 57 north and south shield pressure-time values for sheep numbers 768 and 769.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/1/97	1	60	North Shield							
	1		South Shield							
	2		North Shield							
	2		South Shield							
	3		North Shield							
	3		South Shield	45.8	45.8	1.0	32.6	55.9	21.8	8.0
	4		North Shield							
	4		South Shield	43.0	43.0	1.1	44.5	74.2	21.4	7.9
	5		North Shield							
	5		South Shield	49.0	49.0	1.0	27.0	57.7	21.8	8.1
	6		North Shield							
	6		South Shield	51.3	51.3	1.0	28.1	59.9	21.4	7.9
	7		North Shield							
	7		South Shield	44.7	44.7	1.0	32.7	60.9	20.8	7.7
	8		North Shield							
	8		South Shield	46.4	46.4	1.0	21.9	72.2	21.4	7.9
	9		North Shield							
	9		South Shield	49.5	49.5	1.0	40.9	59.8	21.5	8.0
	10		North Shield							
	10		South Shield	55.1	55.1	1.0	32.8	58.9	21.5	8.0
	11		North Shield							
	11		South Shield	55.8	55.8	1.0	20.6	77.1	20.9	7.9
	12		North Shield							
	12		South Shield	44.7	44.7	1.1	46.0	57.7	20.7	7.6
	13		North Shield							
	13		South Shield	48.6	48.6	1.0	44.3	75.2	21.3	8.0
	14		North Shield							
	14		South Shield	47.3	47.3	1.0	59.9	100.2	21.2	7.8
	15		North Shield							
	15		South Shield	56.6	56.6	1.0	53.2	111.9	21.8	7.9
	16		North Shield							
	16		South Shield	46.7	46.7	1.0	32.8	100.1	21.4	7.9
	17		North Shield							
	17		South Shield	57.2	57.2	1.0	32.8	68.6	21.6	8.0
	18		North Shield							
	18		South Shield	46.2	46.2	1.0	45.7	94.1	20.8	7.6
	19		North Shield							
	19		South Shield	43.0	43.0	1.2	46.0	82.6	21.0	7.7
	20		North Shield							
	20		South Shield	46.8	46.8	1.1	53.7	78.5	21.2	7.8
	21		North Shield							
	21		South Shield	50.2	50.2	1.0	32.8	78.2	20.9	7.7
	22		North Shield							
	22		South Shield	44.1	44.1	1.2	44.6	97.4	21.3	7.9
	23		North Shield							
	23		South Shield	41.9	41.9	1.1	54.3	110.9	20.8	7.6

Table C-57. Test 57 north and south shield pressure-time values for sheep numbers 768 and 769.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/1/97	24	60	North Shield							
	24		South Shield	42.9	42.9	1.2	46.0	85.5	20.3	7.4
	25		North Shield							
	25		South Shield							
	26		South Shield	45.8	45.8	1.1	53.2	73.2	21.3	7.8
	26		North Shield							
	27		South Shield	45.5	38.4	1.0	46.6	97.0	21.5	7.8
	27		North Shield							
	28		South Shield	43.4	42.8	1.0	53.9	76.3	21.5	8.0
	28		North Shield							
	29		South Shield	43.5	43.5	1.0	48.7	101.2	21.1	8.0
	29		North Shield							
	30		South Shield	40.1	35.7	1.2	55.1	80.2	20.0	7.3
	30		North Shield							
	31		South Shield	43.9	43.9	1.0	47.0	87.5	20.3	7.4
	31		North Shield							
	32		South Shield	49.7	49.7	1.0	39.3	78.0	21.3	8.0
	32		North Shield							
	33		South Shield	48.0	48.0	1.0	32.7	73.5	21.0	7.8
	33		North Shield							
	34		South Shield	47.5	47.5	1.0	40.3	85.2	21.5	7.9
	34		North Shield							
	35		South Shield	45.7	45.7	1.0	32.8	103.6	20.8	7.7
	35		North Shield							
	36		South Shield	45.2	45.2	1.1	44.4	73.3	21.6	8.0
	36		North Shield							
	37		South Shield	45.8	45.8	1.0	39.2	70.7	21.5	8.0
	37		North Shield							
	38		South Shield	41.9	41.9	1.2	54.2	98.5	21.5	7.9
	38		North Shield							
	39		South Shield	47.9	47.9	1.0	32.7	75.1	21.1	7.8
	39		North Shield							
	40		South Shield	47.3	47.3	1.0	55.9	97.6	21.2	7.8
	40		North Shield							
	41		South Shield	42.4	42.4	1.1	55.6	105.4	21.7	8.0
	41		North Shield							
	42		South Shield	45.2	45.2	1.2	55.6	95.8	21.4	7.9
	42		North Shield							
	43		South Shield	44.1	43.5	1.0	59.4	87.1	20.9	7.7
	43		North Shield							
	44		South Shield	44.2	44.2	1.0	46.3	85.6	21.2	8.0
	44		North Shield							
	45		South Shield	45.2	45.2	1.0	32.5	58.7	21.1	8.0
	45		North Shield							
	46		South Shield	44.5	44.5	1.0	46.2	85.5	20.7	7.7
	46		North Shield							

Table C-57. Test 57 north and south shield pressure-time values for sheep numbers 768 and 769.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/1/97	47	60	South Shield							
	47		North Shield							
	48		South Shield	51.7	51.7	1.1	44.7	78.9	20.6	7.6
	48		North Shield							
	49		South Shield	47.2	47.2	1.1	32.7	82.6	21.2	7.8
	49		North Shield							
	50		South Shield	53.5	53.5	1.0	55.6	75.5	21.0	7.8
	50		North Shield							
Mean				46.9	46.6	1.0	43.0	81.4	21.2	7.8
SD				4.0	4.4	0.1	10.3	15.3	0.4	0.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-58. Test 58 north and south shield pressure-time values for sheep numbers 770 and 771.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/3/97	1	285	North Shield	114.0	114.0	1.3	29.2	40.2	41.8	15.6
	1		South Shield	116.3	116.3	1.2	32.7	46.7	46.0	17.8
	2		North Shield	114.6	112.9	1.0	22.2	38.4	43.0	16.2
	2		South Shield	122.6	122.6	1.2	32.8	52.7	47.1	18.1
	3		North Shield	110.6	110.6	1.0	22.3	36.5	43.1	16.0
	3		South Shield	121.9	121.9	1.3	22.1	65.2	45.8	17.6
	4		North Shield	110.0	109.4	1.9	28.8	38.9	47.0	16.6
	4		South Shield	135.2	135.2	1.3	23.1	48.2	45.5	17.7
	5		North Shield	117.4	115.7	1.0	22.2	41.8	44.1	16.4
	5		South Shield	120.6	120.6	1.4	23.2	84.0	44.6	17.3
	6		North Shield	120.9	120.9	0.9	13.9	39.0	45.2	16.9
	6		South Shield	119.6	119.6	1.3	23.1	111.2	45.6	17.7
	7		North Shield	110.2	110.2	1.2	23.1	41.5	43.7	16.4
	7		South Shield	123.1	123.1	1.9	33.4	88.7	51.1	18.2
	8		North Shield	117.7	117.7	1.2	23.0	47.5	42.9	16.2
	8		South Shield	128.6	128.6	1.1	22.2	233.5	47.1	18.0
	9		North Shield	115.7	112.9	1.1	15.3	41.8	45.9	17.2
	9		South Shield	120.4	120.4	2.2	34.1	171.6	50.8	18.0
	10		North Shield	119.7	119.7	2.0	31.0	41.8	47.6	16.9
	10		South Shield	122.7	122.7	1.1	45.2	123.1	45.6	17.6
	11		North Shield	116.6	115.4	1.1	22.0	47.5	43.7	16.7
	11		South Shield	122.6	122.6	1.0	43.7	174.7	46.1	17.7
	12		North Shield	122.9	122.3	1.1	23.1	47.6	43.8	16.7
	12		South Shield	123.3	123.3	1.0	46.9	160.4	47.3	18.3
	13		North Shield	117.4	117.4	1.0	14.5	48.2	45.3	17.1
	13		South Shield	117.2	117.2	1.6	59.6	165.6	46.8	17.6
	14		North Shield	123.2	123.2	1.1	14.5	37.6	46.7	17.4
	14		South Shield	122.5	122.5	1.2	48.0	154.1	46.0	17.8
	15		North Shield	121.5	121.5	1.5	14.5	37.1	48.0	17.6
	15		South Shield	124.7	124.7	1.1	74.8	145.8	45.9	17.9
	16		North Shield	119.2	119.2	1.1	24.6	37.6	44.3	16.9
	16		South Shield	123.7	123.7	2.0	47.0	117.0	50.7	18.1
	17		North Shield	113.4	109.4	1.1	33.8	35.1	46.4	17.5
	17		South Shield	116.5	116.5	2.1	34.7	279.2	49.0	17.5
	18		North Shield	125.5	120.9	1.0	14.5	44.6	45.8	17.4
	18		South Shield	127.0	127.0	1.2	48.0	111.2	45.7	17.6
	19		North Shield							
	19		South Shield							
	20		North Shield	124.3	118.6	1.1	14.7	43.8	44.3	16.9
	20		South Shield	121.9	121.9	1.3	73.0	280.4	45.5	17.8
	21		North Shield	127.9	118.1	1.2	15.8	44.5	46.4	17.4
	21		South Shield	120.9	120.9	1.0	72.0	144.1	44.3	17.5
	22		North Shield	121.5	112.8	1.1	13.6	37.4	46.1	17.5
	22		South Shield	118.0	118.0	1.2	72.5	159.9	45.4	17.7
	23		North Shield	130.9	122.8	1.1	7.4	35.1	46.7	17.6
	23		South Shield	122.4	122.4	1.5	45.9	169.0	46.8	17.9

Table C-58. Test 58 north and south shield pressure-time values for sheep numbers 770 and 771.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/3/97	24	285	North Shield	134.4	122.9	2.0	22.2	45.0	51.2	18.1
	24		South Shield	120.8	120.8	1.0	48.0	204.2	43.0	17.3
	25		North Shield	138.7	127.2	1.0	7.5	23.2	47.3	18.0
	25		South Shield	121.3	121.3	1.3	61.6	164.5	44.2	17.2
	26		North Shield	120.9	120.9	1.1	22.2	39.2	42.3	15.5
	26		South Shield	117.5	117.5	1.7	62.7	164.6	46.5	17.6
	27		North Shield	121.1	121.1	0.9	22.2	26.5	39.9	15.3
	27		South Shield	125.3	125.3	1.4	40.6	110.0	45.1	17.5
	28		North Shield	115.7	115.7	1.3	22.1	37.9	43.4	15.8
	28		South Shield	123.4	123.4	1.0	48.2	115.0	41.6	16.8
	29		North Shield	113.4	113.4	0.9	22.2	40.4	41.6	15.7
	29		South Shield	121.5	121.5	1.6	46.9	135.1	45.1	17.2
	30		North Shield	121.5	121.5	1.0	22.1	40.4	43.7	16.2
	30		South Shield	125.9	125.9	1.6	35.7	195.6	43.6	17.0
	31		North Shield	116.4	116.4	1.4	28.9	38.5	43.8	16.2
	31		South Shield	123.9	123.9	1.3	75.5	112.3	44.6	17.4
	32		North Shield	118.0	118.0	1.2	16.7	41.0	42.2	15.8
	32		South Shield	119.8	119.8	1.3	46.2	108.9	44.9	17.6
	33		North Shield	115.8	115.8	1.0	22.2	41.1	42.9	16.2
	33		South Shield	124.6	124.6	1.3	46.8	118.0	45.2	17.6
	34		North Shield	124.9	124.9	0.9	13.7	26.6	45.3	17.1
	34		South Shield	120.4	120.4	1.7	44.7	290.0	46.6	17.8
	35		North Shield	119.2	115.7	0.9	22.2	26.0	47.4	17.5
	35		South Shield	122.5	122.5	1.3	33.0	102.6	44.0	17.2
	36		North Shield	120.9	118.6	1.0	13.7	25.9	46.4	17.5
	36		South Shield	123.0	123.0	1.5	47.9	112.5	45.1	17.2
	37		North Shield	122.6	120.3	1.0	22.1	41.8	44.7	17.1
	37		South Shield	123.7	123.7	1.0	39.4	104.7	42.5	17.1
	38		North Shield	122.4	119.5	1.0	13.9	28.2	44.3	16.8
	38		South Shield	115.8	115.8	1.2	35.8	89.0	43.2	16.9
	39		North Shield	125.0	119.2	1.0	14.5	42.1	46.4	17.3
	39		South Shield	123.1	123.1	1.3	33.1	94.0	43.9	17.3
	40		North Shield	125.9	117.3	1.0	9.3	41.5	48.4	18.0
	40		South Shield	113.7	113.7	1.6	44.4	116.2	44.2	16.9
	41		North Shield	128.5	118.1	1.0	15.6	40.3	46.4	17.6
	41		South Shield	126.8	126.8	1.5	35.6	110.4	45.1	17.3
	42		North Shield	121.2	113.1	2.0	30.6	40.0	52.0	18.3
	42		South Shield	117.6	117.6	1.5	34.7	149.2	46.4	17.7
	43		North Shield	124.0	124.0	1.0	22.2	42.4	46.9	17.7
	43		South Shield	119.2	119.2	1.8	47.9	111.5	46.3	17.4
	44		North Shield	134.1	130.6	1.0	14.5	33.6	46.8	17.9
	44		South Shield	122.7	122.7	2.0	50.1	104.6	49.6	17.6
	45		North Shield	134.8	127.3	1.1	13.7	42.0	46.8	17.6
	45		South Shield	123.7	123.7	1.2	33.2	105.2	44.7	17.3
	46		North Shield	128.4	119.2	1.9	16.5	42.0	51.5	18.2
	46		South Shield	121.4	121.4	1.6	35.5	114.7	45.2	17.3

Table C-58. Test 58 north and south shield pressure-time values for sheep numbers 770 and 771.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/3/97	47	285	North Shield	130.1	130.1	1.0	15.9	37.5	47.2	17.7
	47		South Shield	127.8	127.8	1.3	42.0	88.1	43.8	16.9
	48		North Shield	136.7	128.7	1.0	9.5	23.0	47.4	18.0
	48		South Shield	123.7	123.7	1.7	41.9	110.4	44.5	17.0
	49		North Shield	140.0	130.8	1.0	13.6	34.0	49.1	18.3
	49		South Shield	120.3	120.3	1.4	41.9	125.7	44.9	17.4
	50		North Shield	135.9	127.2	1.0	14.8	23.2	47.7	18.2
	50		South Shield	118.7	118.7	1.6	41.9	128.7	46.1	17.7
Mean				122.3	120.6	1.3	31.4	86.1	45.6	17.3
SD				5.9	4.9	0.3	16.4	61.7	2.3	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-59. Test 59 north and south shield pressure-time values for sheep numbers 772 and 773.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/8/97	1	285	North Shield	108.3	108.3	1.2	23.2	40.2	39.2	14.2
	1		South Shield	115.8	115.8	1.0	24.8	48.1	47.8	18.2
	2		North Shield	116.3	116.3	0.9	22.2	23.3	38.8	14.5
	2		South Shield	132.8	132.8	2.0	32.0	89.6	52.3	18.5
	3		North Shield	119.2	119.2	1.3	22.2	39.8	41.8	15.4
	3		South Shield	126.9	126.9	1.2	22.2	47.2	46.4	18.0
	4		North Shield	115.2	115.2	1.5	22.2	48.2	40.3	14.9
	4		South Shield	120.2	120.2	2.1	33.0	86.0	51.7	18.4
	5		North Shield	114.0	114.0	1.5	22.3	55.9	41.2	14.9
	5		South Shield	125.2	125.2	1.2	32.5	86.0	49.2	18.6
	6		North Shield	118.1	118.1	1.2	22.3	40.5	41.1	15.4
	6		South Shield	124.5	124.5	1.0	22.7	84.4	46.9	18.2
	7		North Shield	111.8	111.8	1.6	22.3	56.0	40.9	15.1
	7		South Shield	127.0	127.0	1.0	32.1	84.3	47.4	18.4
	8		North Shield	114.0	114.0	1.1	22.3	40.6	40.5	15.3
	8		South Shield	125.3	125.3	2.0	41.0	93.6	52.9	18.8
	9		North Shield	127.2	127.2	1.0	22.2	23.3	42.1	15.7
	9		South Shield	123.4	123.4	2.0	34.7	110.1	52.2	18.5
	10		North Shield	111.3	111.3	1.2	22.3	41.8	44.1	16.2
	10		South Shield	122.8	122.8	1.7	34.4	104.1	46.7	17.7
	11		North Shield	118.1	118.1	1.0	22.2	41.8	42.0	15.8
	11		South Shield	121.7	121.7	1.3	35.4	84.4	46.9	17.8
	12		North Shield	113.0	113.0	0.9	22.3	47.4	43.2	16.0
	12		South Shield	113.6	113.6	1.5	42.0	110.6	45.7	17.5
	13		North Shield	117.4	117.4	0.9	22.3	56.0	41.3	15.4
	13		South Shield	112.4	112.4	1.2	42.2	131.1	44.0	17.1
	14		North Shield	116.9	116.9	1.1	22.3	40.0	43.7	16.2
	14		South Shield	120.2	120.2	1.7	34.5	125.4	46.8	17.7
	15		North Shield	116.3	116.3	1.0	22.4	55.9	43.9	16.1
	15		South Shield	116.8	116.8	1.7	34.5	96.0	46.8	17.6
	16		North Shield	114.6	114.6	1.3	28.7	40.3	43.7	15.8
	16		South Shield	119.5	119.5	1.3	48.3	134.5	44.8	17.5
	17		North Shield	114.0	114.0	1.2	28.2	40.9	42.9	15.6
	17		South Shield	116.3	116.3	1.4	57.8	116.7	46.6	17.9
	18		North Shield	121.6	121.6	1.2	19.4	40.8	43.7	16.0
	18		South Shield	130.7	130.7	1.5	34.7	113.1	47.3	17.9
	19		North Shield	117.4	117.4	1.0	22.3	40.2	41.2	15.5
	19		South Shield	124.2	19.9	1.5	42.1	89.9	45.2	17.5
	20		North Shield	118.0	118.0	1.3	15.1	40.1	41.9	15.3
	20		South Shield	120.2	119.1	1.2	41.1	93.8	45.6	17.7
	21		North Shield	126.7	126.7	1.2	29.2	40.4	43.0	15.8
	21		South Shield	124.4	124.4	1.3	35.5	117.4	44.2	17.3
	22		North Shield	123.3	123.3	1.3	28.1	40.3	42.6	15.8
	22		South Shield	118.6	118.6	1.3	35.7	89.2	44.2	17.3
	23		North Shield	119.7	118.6	1.2	13.9	40.2	43.4	16.0
	23		South Shield	121.8	121.8	1.4	35.6	92.6	46.5	17.7

Table C-59. Test 59 north and south shield pressure-time values for sheep numbers 772 and 773.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/8/97	24	285	North Shield	119.2	119.2	1.0	22.3	41.0	44.0	16.3
	24		South Shield	125.5	125.5	1.3	48.2	116.6	43.9	17.1
	25		North Shield	121.5	121.5	1.0	22.3	40.9	42.5	16.2
	25		South Shield	116.8	116.8	1.3	35.4	101.7	44.5	17.3
	26		North Shield	112.4	112.4	1.4	28.2	44.0	43.6	15.7
	26		South Shield	126.7	126.7	1.3	35.5	106.2	46.6	17.6
	27		North Shield	112.3	112.3	1.4	22.3	44.0	42.5	15.4
	27		South Shield	121.9	121.9	1.1	48.3	91.4	45.7	17.8
	28		North Shield	115.2	115.2	1.5	19.4	62.2	40.9	15.0
	28		South Shield	120.9	120.9	1.2	59.2	132.0	45.6	17.9
	29		North Shield	112.3	112.3	1.3	22.1	52.5	42.0	15.4
	29		South Shield	125.6	125.6	2.1	34.4	99.2	50.4	17.8
	30		North Shield	112.8	112.8	1.3	28.2	40.6	42.9	15.7
	30		South Shield	127.4	127.4	1.2	35.4	88.3	45.2	17.8
	31		North Shield	118.6	118.6	1.2	28.1	40.0	42.6	15.7
	31		South Shield	115.9	115.9	1.2	40.8	200.7	45.2	17.7
	32		North Shield	117.4	117.4	1.4	28.2	39.9	42.3	15.3
	32		South Shield	126.1	126.1	1.2	47.3	106.1	45.2	17.8
	33		North Shield	120.9	120.9	1.2	22.2	37.7	43.0	16.0
	33		South Shield	122.0	122.0	1.2	35.6	108.2	45.9	18.0
	34		North Shield	110.0	110.0	1.2	28.9	56.4	43.0	15.7
	34		South Shield	121.5	121.5	1.3	34.2	112.7	44.2	17.1
	35		North Shield	116.3	116.3	1.0	22.2	39.9	41.7	15.8
	35		South Shield	114.8	114.8	1.6	33.2	170.0	46.6	17.7
	36		North Shield	118.6	118.6	1.0	22.2	26.8	43.4	16.4
	36		South Shield	121.2	121.2	1.8	35.6	297.7	46.2	17.5
	37		North Shield	117.4	117.4	2.0	30.8	41.9	47.2	16.7
	37		South Shield	115.3	115.3	1.3	36.2	107.9	44.0	17.2
	38		North Shield	122.0	122.0	1.9	31.0	41.6	47.9	16.9
	38		South Shield	114.7	114.7	1.2	35.7	89.8	44.7	17.6
	39		North Shield	115.7	115.7	1.0	13.8	41.7	45.1	17.1
	39		South Shield	128.9	128.9	1.2	33.2	97.8	44.7	17.5
	40		North Shield	117.4	117.4	1.0	22.3	27.0	46.2	17.3
	40		South Shield	119.0	119.0	1.3	39.2	174.1	45.1	17.5
	41		North Shield	116.3	115.1	1.1	19.1	42.1	46.0	17.2
	41		South Shield	119.8	119.8	1.5	46.2	111.1	45.0	17.4
	42		North Shield	122.1	122.1	1.0	10.6	41.7	45.3	17.1
	42		South Shield	125.6	125.6	1.3	48.2	89.5	45.0	17.5
	43		North Shield	121.5	121.5	1.0	9.5	26.8	46.1	17.5
	43		South Shield	118.6	118.6	1.4	48.3	378.5	45.8	17.6
	44		North Shield	127.8	127.8	1.0	9.1	26.4	47.2	17.6
	44		South Shield	120.2	120.2	1.4	48.1	141.4	43.9	17.1
	45		North Shield	119.2	117.4	1.0	9.0	41.7	46.0	17.4
	45		South Shield	117.8	117.8	1.4	48.2	103.4	45.4	17.5
	46		North Shield	122.6	122.6	1.0	19.1	42.7	46.7	17.5
	46		South Shield	121.9	121.9	1.4	33.5	99.2	44.9	17.4

Table C-59. Test 59 north and south shield pressure-time values for sheep numbers 772 and 773.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/8/97	47	285	North Shield	120.9	117.4	2.0	31.3	41.5	49.5	17.5
	47		South Shield	119.2	119.2	1.2	35.7	84.7	44.7	17.5
	48		North Shield	122.1	119.2	2.1	31.8	42.5	50.0	17.7
	48		South Shield	124.1	124.1	1.2	33.2	88.4	44.6	17.6
	49		North Shield	126.1	119.7	1.9	32.2	42.5	51.6	18.2
	49		South Shield	116.4	116.4	2.4	39.9	94.1	50.4	17.8
	50		North Shield							
	50		South Shield							
Mean				119.6	118.4	1.3	30.4	78.1	45.0	16.9
SD				4.9	11.2	0.3	10.4	53.3	2.9	1.1

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-60. Test 60 north and south shield pressure-time values for sheep numbers 774 and 775.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/10/97	1	285	North Shield							
	1		South Shield							
	2		South Shield	116.4	17.6	1.0	23.2	51.3	42.7	17.5
	2		North Shield	111.1	111.1	1.1	22.2	37.6	40.7	15.0
	3		South Shield	113.6	17.5	1.4	33.2	90.9	44.6	17.5
	3		North Shield	111.7	111.7	1.1	22.3	40.2	41.6	15.1
	4		South Shield	120.9	120.9	1.7	23.2	59.5	45.0	17.3
	4		North Shield	110.0	110.0	1.1	22.2	40.3	40.3	14.9
	5		South Shield	119.8	119.8	1.5	33.2	47.1	48.6	18.1
	5		North Shield	112.3	112.3	1.1	22.1	40.2	38.3	14.4
	6		North Shield	110.0	110.0	1.2	22.2	39.9	39.2	14.5
	6		South Shield	120.3	120.3	1.2	23.2	62.7	46.8	18.2
	7		North Shield	112.3	112.3	1.1	22.2	40.1	39.7	14.9
	7		South Shield	128.5	128.5	1.1	27.4	47.7	45.9	17.7
	8		North Shield	110.6	110.6	1.4	28.5	40.2	42.4	15.4
	8		South Shield	120.3	120.3	1.1	33.1	47.9	47.1	18.3
	9		North Shield	116.3	116.3	1.2	22.2	40.1	40.4	15.0
	9		South Shield	119.7	119.7	1.1	33.3	61.8	45.8	18.0
	10		North Shield	108.3	108.3	1.1	22.2	40.2	40.5	15.1
	10		South Shield	122.6	122.6	1.1	34.0	155.1	46.2	18.1
	11		North Shield	104.3	104.3	1.4	37.0	41.3	41.0	15.0
	11		South Shield	120.3	120.3	1.7	35.0	112.0	48.5	18.2
	12		North Shield	106.5	106.5	1.2	22.3	40.2	41.8	15.4
	12		South Shield	120.9	120.9	1.3	34.3	121.7	44.3	17.5
	13		North Shield	103.0	103.0	1.1	22.2	40.9	41.4	15.3
	13		South Shield	122.0	122.0	2.1	35.1	99.4	51.1	18.2
	14		North Shield	117.0	117.0	1.2	19.1	40.2	41.3	15.3
	14		South Shield	124.7	124.7	1.2	33.4	72.0	44.6	17.4
	15		North Shield	112.3	112.3	1.3	22.2	37.4	40.2	15.0
	15		South Shield	116.9	116.9	2.3	34.9	114.5	50.6	17.9
	16		North Shield	109.6	109.6	1.5	28.3	40.0	42.3	15.7
	16		South Shield	129.2	129.2	1.1	33.3	63.0	45.2	17.7
	17		North Shield	110.0	110.0	1.2	22.3	39.9	42.6	15.8
	17		South Shield	127.3	127.3	1.0	26.8	73.4	45.9	18.0
	18		North Shield	114.6	114.6	1.2	19.1	37.8	41.1	15.3
	18		South Shield	126.4	126.4	1.0	33.4	84.4	46.1	17.9
	19		North Shield	112.9	112.9	1.0	22.2	41.5	39.6	15.0
	19		South Shield	126.4	126.4	1.0	33.3	84.4	47.4	18.3
	20		North Shield	119.2	119.2	1.1	23.0	37.7	40.6	15.4
	20		South Shield	119.7	119.7	1.0	38.8	111.3	47.2	18.3
	21		North Shield	111.2	111.2	1.2	22.0	40.9	40.2	15.3
	21		South Shield	122.0	122.0	1.0	32.9	87.3	47.2	18.4
	22		North Shield	112.9	112.9	1.7	22.1	40.3	41.1	15.2
	22		South Shield	122.5	122.5	2.1	35.0	113.7	50.4	17.9
	23		North Shield	124.7	124.7	1.2	15.2	40.1	41.2	15.6
	23		South Shield	127.0	127.0	1.0	32.6	92.7	47.2	18.3

Table C-60. Test 60 north and south shield pressure-time values for sheep numbers 774 and 775.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/10/97	24	285	North Shield	115.7	115.7	1.2	22.1	41.0	41.4	15.6
	24		South Shield	130.8	130.8	1.0	26.1	54.7	48.7	19.0
	25		North Shield	108.8	108.8	1.3	23.1	62.0	41.9	15.6
	25		South Shield	127.5	127.5	1.0	33.4	48.5	47.5	18.4
	26		North Shield	112.3	112.3	1.2	29.3	65.0	41.6	15.5
	26		South Shield	126.4	126.4	1.0	26.0	47.0	48.4	18.8
	27		North Shield	113.5	113.5	1.0	23.1	47.8	40.0	15.2
	27		South Shield	124.7	124.7	1.0	32.4	55.1	48.8	18.8
	28		North Shield	118.8	118.8	1.0	22.1	37.5	42.1	15.9
	28		South Shield	131.3	131.3	1.2	32.1	75.6	46.1	17.7
	29		North Shield	117.7	117.7	1.0	22.0	62.3	42.4	16.0
	29		South Shield	125.9	125.9	1.0	33.3	70.4	46.0	17.9
	30		North Shield	123.8	123.8	1.0	13.8	42.7	42.7	16.2
	30		South Shield	128.6	128.6	2.2	26.2	90.4	50.7	18.0
	31		North Shield	121.0	121.0	1.0	14.4	66.0	42.2	15.8
	31		South Shield	118.7	18.7	1.2	33.4	92.8	45.6	17.8
	32		North Shield	114.7	114.7	1.0	22.1	66.0	41.6	15.7
	32		South Shield	118.1	118.1	1.4	33.5	88.0	45.8	17.6
	33		North Shield	116.6	116.6	1.2	30.8	65.9	43.0	16.0
	33		South Shield	123.1	123.1	1.0	23.0	58.2	45.3	17.9
	34		North Shield	110.5	110.5	1.2	22.1	62.1	43.0	16.0
	34		South Shield	118.0	118.0	1.0	33.3	112.6	44.1	17.4
	35		North Shield	108.2	108.2	1.0	22.1	55.3	42.6	16.0
	35		South Shield	122.5	122.5	1.5	33.4	88.4	45.6	17.6
	36		North Shield	109.4	109.4	1.2	22.1	37.7	42.9	16.0
	36		South Shield	123.1	123.1	1.2	33.2	62.6	44.1	17.3
	37		North Shield	114.1	114.1	1.0	22.2	23.3	42.9	15.9
	37		South Shield	116.5	116.5	1.2	33.2	95.4	44.4	17.4
	38		North Shield	115.7	115.7	1.0	18.9	40.9	43.3	16.2
	38		South Shield	123.7	123.7	1.5	33.2	83.1	46.2	17.6
	39		North Shield	113.4	113.4	1.0	22.1	44.2	41.7	15.7
	39		South Shield	124.2	124.2	1.5	33.4	74.2	46.6	17.8
	40		North Shield	115.8	115.8	1.5	31.1	42.3	43.2	15.9
	40		South Shield	121.9	121.9	1.5	33.1	59.3	45.5	17.5
	41		North Shield	116.3	116.3	1.0	21.9	42.3	42.1	15.9
	41		South Shield	125.8	125.8	1.5	33.4	103.8	44.9	17.5
	42		North Shield	118.7	118.7	2.3	28.0	44.0	46.5	16.4
	42		South Shield	128.1	128.1	1.4	33.2	87.9	44.0	17.2
	43		North Shield	125.5	125.5	0.9	13.9	26.9	41.4	15.7
	43		South Shield	125.3	125.3	1.3	23.0	57.7	43.9	17.0
	44		North Shield	114.1	109.5	1.0	14.0	42.5	41.9	15.9
	44		South Shield	121.9	121.9	1.3	33.2	95.6	46.0	17.8
	45		North Shield	110.0	110.0	0.9	22.2	42.6	42.7	16.3
	45		South Shield	122.0	122.0	1.4	33.4	84.5	45.6	17.6
	46		North Shield	123.9	123.9	1.0	21.7	26.1	43.5	16.3
	46		South Shield	119.2	17.6	1.4	23.0	67.7	46.2	17.8

Table C-60. Test 60 north and south shield pressure-time values for sheep numbers 774 and 775.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/10/97	47	285	North Shield	116.9	116.9	0.9	22.1	33.2	43.4	16.3
	47		South Shield	124.7	124.7	1.3	23.0	64.6	45.0	17.5
	48		North Shield	120.3	120.3	1.0	21.9	26.8	43.5	16.2
	48		South Shield	122.5	20.9	1.6	23.1	110.7	45.8	17.8
	49		North Shield	116.4	116.4	1.0	19.2	42.6	41.7	15.7
	49		South Shield	118.7	18.2	1.2	33.4	65.0	45.2	17.7
	50		North Shield	108.8	108.8	1.0	22.2	42.5	43.1	16.2
	50		South Shield	128.1	20.4	1.4	23.0	88.7	45.6	17.6
Mean				118.5	111.2	1.2	26.6	61.7	44.0	16.7
SD				6.5	26.6	0.3	6.1	26.1	2.8	1.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-61. Test 61 north and south shield pressure-time values for sheep numbers 776 and 777.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/15/97	1	285	North Shield	117.5	117.5	1.2	22.2	37.4	40.3	15.0
	1		South Shield	119.2	119.2	1.2	33.0	155.1	45.5	17.4
	2		North Shield	114.6	114.6	1.4	22.3	40.4	42.8	15.7
	2		South Shield	121.8	121.8	1.2	33.1	41.9	45.0	17.6
	3		North Shield	112.8	112.8	1.1	22.3	40.5	41.7	15.5
	3		South Shield	123.0	123.0	1.2	33.2	48.1	45.8	17.7
	4		North Shield	116.9	116.9	0.9	22.2	44.0	40.5	15.1
	4		South Shield	116.2	116.2	1.3	25.7	177.5	44.4	17.2
	5		North Shield	105.9	105.9	1.5	22.3	47.6	40.2	14.8
	5		South Shield	120.3	120.3	1.3	23.3	85.0	46.6	17.8
	6		North Shield	112.3	112.3	0.9	22.3	40.3	41.0	15.4
	6		South Shield	118.6	118.6	1.5	33.4	83.7	43.8	16.8
	7		North Shield	111.1	108.8	1.4	22.3	40.6	45.9	16.8
	7		South Shield	114.9	114.9	1.3	33.4	162.6	43.1	16.7
	8		South Shield	117.6	117.6	1.2	34.8	88.1	44.0	17.3
	8		North Shield	115.2	115.2	1.0	22.2	44.0	44.2	16.5
	9		North Shield	114.0	114.0	0.9	22.2	37.6	44.7	16.7
	9		South Shield	118.0	118.0	1.3	33.4	89.1	44.1	17.2
	10		North Shield	117.4	115.1	0.9	22.3	38.3	44.3	16.3
	10		South Shield							
	11		North Shield	111.7	106.5	0.9	22.3	38.3	43.9	16.3
	11		South Shield	120.8	120.8	1.3	33.7	56.7	43.9	17.3
	12		South Shield	124.8	124.8	1.3	33.4	70.4	45.4	17.7
	12		North Shield	110.0	109.4	1.0	22.3	39.8	44.2	16.3
	13		South Shield	118.8	118.8	1.6	33.4	96.4	44.9	17.1
	13		North Shield	117.5	117.5	0.9	22.3	39.1	44.5	16.4
	14		South Shield	123.3	123.3	1.0	32.3	75.6	47.1	18.0
	14		North Shield	114.6	114.6	1.4	28.2	48.4	42.8	15.4
	15		South Shield	115.9	115.9	1.1	33.5	130.2	46.2	18.0
	15		North Shield	123.2	123.2	1.0	22.2	37.9	41.1	15.4
	16		North Shield	119.2	119.2	1.3	28.8	40.3	44.9	16.3
	16		South Shield	126.2	126.2	1.2	23.2	68.8	45.2	17.6
	17		North Shield	127.8	127.8	1.0	22.2	40.3	42.2	15.8
	17		South Shield	119.3	119.3	1.3	34.7	188.9	45.8	17.9
	18		North Shield	119.2	119.2	1.1	22.1	39.7	43.6	16.4
	18		South Shield	128.0	128.0	1.1	34.7	75.5	45.4	17.6
	19		North Shield	117.5	117.5	1.1	22.2	41.4	43.6	16.5
	19		South Shield	117.8	117.8	2.1	34.8	88.2	48.8	17.3
	20		North Shield	126.1	126.1	1.1	15.6	43.1	44.7	16.8
	20		South Shield	127.2	127.2	1.0	35.7	88.3	45.0	17.0
	21		South Shield	128.6	128.6	1.1	33.4	86.3	46.4	17.6
	21		North Shield	122.1	119.2	1.2	15.7	40.4	44.9	17.0
	22		South Shield	122.3	122.3	2.0	35.7	88.9	50.4	17.9
	22		North Shield	122.6	122.6	1.2	22.2	41.7	47.0	17.6
	23		North Shield	129.0	121.5	2.1	13.7	53.0	49.8	17.6
	23		South Shield	128.1	128.1	1.0	23.2	89.0	45.6	17.8

Table C-61. Test 61 north and south shield pressure-time values for sheep numbers 776 and 777.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/15/97	24	285	South Shield	136.8	136.8	1.0	32.6	83.7	46.7	18.0
	24		North Shield	134.7	129.5	1.2	14.5	27.2	47.9	18.1
	25		South Shield	131.3	131.3	1.0	32.5	75.5	45.8	17.7
	25		North Shield	134.7	121.5	1.1	15.6	42.4	48.6	18.3
	26		North Shield	110.6	108.8	1.6	22.2	52.2	41.5	15.5
	26		South Shield	122.6	122.6	1.0	32.4	48.3	45.8	17.6
	27		North Shield	112.3	112.3	1.0	22.2	44.3	44.5	16.6
	27		South Shield	129.4	129.4	1.2	40.8	96.1	43.7	16.9
	28		North Shield							
	28		South Shield							
	29		North Shield	123.8	123.8	1.0	22.2	23.3	44.8	16.6
	29		South Shield	122.4	122.4	1.3	33.4	89.9	43.7	17.2
	30		North Shield	113.4	113.4	1.3	22.2	41.9	43.9	16.5
	30		South Shield	120.8	120.8	1.0	47.5	64.9	44.4	17.6
	31		North Shield	122.0	122.0	1.2	22.1	41.7	44.5	16.6
	31		South Shield	124.2	124.2	1.0	23.2	55.9	46.6	18.2
	32		North Shield	115.1	115.1	1.2	28.0	41.9	43.6	16.3
	32		South Shield	121.7	121.7	1.0	26.2	88.9	46.1	17.8
	33		North Shield	116.3	116.3	1.3	22.1	53.1	44.5	16.7
	33		South Shield	128.6	128.6	1.0	32.4	88.5	47.1	18.4
	34		North Shield	116.9	116.9	1.2	22.1	41.9	45.0	16.9
	34		South Shield	124.3	124.3	1.0	35.0	76.9	44.5	17.5
	35		North Shield	115.1	115.1	1.1	22.1	41.9	44.6	16.7
	35		South Shield	127.7	127.7	1.9	32.5	72.6	50.3	17.8
	36		North Shield	115.7	112.8	1.4	29.2	42.0	44.4	16.5
	36		South Shield	115.8	115.8	1.6	33.5	88.0	46.7	17.5
	37		North Shield	120.9	118.1	1.0	22.3	42.1	45.2	16.9
	37		South Shield	121.3	121.3	1.3	33.3	83.7	45.5	17.6
	38		North Shield	115.8	114.6	1.2	22.2	48.1	45.9	16.9
	38		South Shield	121.4	121.4	1.1	23.1	84.4	45.2	17.6
	39		North Shield	117.6	117.6	1.2	22.1	48.5	43.1	16.2
	39		South Shield	125.0	125.0	1.6	33.3	83.8	48.5	18.0
	40		North Shield	117.5	117.5	1.1	13.6	42.0	44.7	16.8
	40		South Shield	123.4	123.4	1.1	33.3	83.7	43.9	17.2
	41		North Shield	118.6	118.6	1.1	13.6	41.4	46.2	17.3
	41		South Shield	132.4	132.4	1.5	22.1	83.5	46.9	17.8
	42		North Shield							
	42		South Shield							
	43		North Shield	137.6	129.6	1.0	11.6	41.6	51.5	19.1
	43		South Shield	116.3	116.3	1.7	34.9	88.8	44.9	17.0
	44		North Shield	128.4	118.6	2.0	41.0	89.1	51.9	18.3
	44		South Shield	123.8	18.9	1.6	23.2	88.2	44.9	17.2
	45		North Shield	138.8	125.5	1.0	10.5	33.2	49.9	18.7
	45		South Shield	118.1	18.2	1.5	35.1	83.7	45.0	17.3
	46		North Shield	140.5	131.3	1.9	40.5	41.7	54.6	19.3
	46		South Shield	120.5	120.5	2.6	33.4	84.7	47.7	16.9

Table C-61. Test 61 north and south shield pressure-time values for sheep numbers 776 and 777.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/15/97	47	285	North Shield	138.7	129.0	1.1	14.7	27.6	48.5	18.4
	47		South Shield	116.5	116.5	1.1	23.2	63.0	44.3	17.3
	48		North Shield	132.4	123.2	1.6	15.0	42.0	50.9	18.7
	48		South Shield	122.6	122.6	1.0	23.1	48.8	42.5	17.0
	49		North Shield	139.3	125.5	1.1	9.3	33.7	49.6	18.6
	49		South Shield	124.2	124.2	1.1	35.1	62.7	44.2	17.3
	50		North Shield							
	50		South Shield							
Mean				121.7	118.2	1.2	26.5	64.3	45.4	17.1
SD				7.3	16.0	0.3	7.7	31.8	2.6	0.9

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-62. Test 62 north and south shield pressure-time values for sheep numbers 778 and 779.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/17/97	1	171	North Shield	101.9	101.9	1.2	22.2	37.6	34.6	12.8
	1		South Shield	103.6	103.6	1.2	23.7	45.2	37.6	14.3
	2		North Shield	95.6	95.6	1.0	22.4	40.6	33.3	12.3
	2		South Shield	99.9	99.9	1.2	22.4	48.5	36.1	13.8
	3		North Shield	95.6	95.6	1.0	22.3	40.5	33.9	12.5
	3		South Shield	96.0	96.0	1.2	22.3	45.3	36.6	14.0
	4		North Shield	109.0	109.0	1.0	22.4	36.6	35.2	13.0
	4		South Shield	94.2	94.2	1.5	23.0	48.3	35.4	13.2
	5		North Shield	110.0	110.0	1.1	22.2	36.5	35.9	13.1
	5		South Shield	105.3	105.3	1.6	31.8	62.9	35.6	13.3
	6		North Shield	93.3	93.3	1.1	24.1	44.9	34.6	12.7
	6		South Shield	98.2	98.2	1.7	22.2	62.8	37.5	13.9
	7		North Shield	94.0	94.0	1.2	22.0	41.4	35.0	12.8
	7		South Shield	92.1	92.1	1.7	32.2	82.7	35.6	13.3
	8		North Shield	102.5	102.5	1.1	22.2	40.6	34.7	12.8
	8		South Shield	100.2	100.2	1.2	33.4	74.4	34.6	13.3
	9		North Shield	99.1	99.1	1.2	22.2	42.3	34.1	12.5
	9		South Shield	106.5	106.5	1.4	23.6	62.9	34.9	13.5
	10		North Shield	100.3	100.3	1.3	22.4	43.5	33.8	12.5
	10		South Shield	94.3	94.3	1.3	22.2	68.8	37.9	14.1
	11		North Shield	95.0	95.0	1.3	27.4	36.5	33.6	12.5
	11		South Shield	106.1	106.1	1.5	32.2	68.7	37.7	13.9
	12		North Shield	100.7	100.7	1.2	22.2	41.1	34.1	12.6
	12		South Shield	101.5	101.5	1.2	22.2	48.3	37.9	14.2
	13		North Shield	97.9	97.9	1.2	27.4	36.6	34.6	12.8
	13		South Shield	107.1	107.1	1.2	22.3	48.3	38.2	14.2
	14		North Shield	97.3	97.3	1.1	22.5	36.4	34.3	12.6
	14		South Shield	106.3	106.3	1.3	22.1	48.3	37.5	14.1
	15		North Shield	96.7	96.7	1.1	22.3	36.6	33.4	12.4
	15		South Shield	103.0	103.0	1.3	22.2	48.3	37.4	14.1
	16		North Shield	110.0	110.0	1.3	22.2	36.7	36.2	13.2
	16		South Shield	100.4	100.4	1.6	22.4	72.4	37.9	14.1
	17		North Shield	91.5	91.5	1.3	27.6	42.4	33.5	12.4
	17		South Shield	102.4	102.4	1.4	32.4	88.3	38.4	14.1
	18		North Shield	96.1	96.1	1.1	22.1	38.3	32.8	12.2
	18		South Shield	100.3	100.3	1.2	32.1	48.4	37.3	14.0
	19		North Shield	96.2	96.2	1.1	22.2	42.0	32.7	12.2
	19		South Shield	106.9	106.9	1.2	22.2	55.6	37.4	14.0
	20		North Shield	104.8	104.8	1.1	15.6	36.7	33.2	12.4
	20		South Shield	108.4	108.4	1.2	22.2	48.4	37.8	13.9
	21		North Shield	100.8	100.8	1.2	22.2	38.3	33.9	12.7
	21		South Shield	100.4	100.4	1.4	22.2	74.5	37.1	13.9
	22		North Shield	103.1	103.1	1.2	15.3	37.9	34.5	12.7
	22		South Shield	98.2	98.2	1.3	32.4	83.8	38.3	14.3
	23		North Shield	97.3	97.3	1.2	22.4	38.7	34.9	12.9
	23		South Shield	101.3	101.3	1.1	22.2	87.9	36.8	13.9

Table C-62. Test 62 north and south shield pressure-time values for sheep numbers 778 and 779.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/17/97	24	171	North Shield	105.4	105.4	1.2	22.2	45.7	33.3	12.3
	24		South Shield	106.1	106.1	1.3	19.4	56.1	37.9	13.9
	25		North Shield	94.4	94.4	1.4	22.4	44.7	32.8	12.1
	25		South Shield	95.7	95.7	1.6	32.2	82.7	37.7	14.0
	26		North Shield	103.1	103.1	1.4	22.3	23.0	32.6	12.1
	26		South Shield	102.1	102.1	1.4	22.2	48.0	38.0	14.3
	27		North Shield	97.3	97.3	1.5	22.3	44.8	33.1	12.0
	27		South Shield	100.4	100.4	1.5	31.9	48.3	38.3	14.2
	28		North Shield	97.3	97.3	1.1	22.4	44.0	31.7	11.9
	28		South Shield	103.0	103.0	1.2	32.3	78.1	37.3	14.0
	29		North Shield	99.6	99.6	1.6	22.2	44.8	32.8	11.9
	29		South Shield	102.6	102.6	1.6	22.3	48.2	39.1	14.6
	30		North Shield	92.7	92.7	1.0	22.3	23.7	32.8	12.2
	30		South Shield	99.7	99.7	1.5	22.3	59.4	37.8	14.1
	31		South Shield	93.7	93.7	1.5	22.2	78.3	37.5	14.1
	31		North Shield	92.8	92.8	1.4	22.2	44.9	32.2	12.0
	32		South Shield	103.7	103.7	1.3	32.1	48.3	38.5	14.4
	32		North Shield	94.4	94.4	1.3	22.3	44.9	33.1	12.3
	33		North Shield	95.0	95.0	1.5	22.2	45.0	32.8	11.9
	33		South Shield	92.8	92.8	1.2	22.2	48.3	35.3	13.5
	34		North Shield	97.3	97.3	1.3	22.1	35.9	32.1	11.8
	34		South Shield	100.9	100.9	1.3	22.2	48.1	37.3	14.2
	35		North Shield	95.0	95.0	1.4	22.4	44.9	32.7	12.1
	35		South Shield	97.5	97.5	1.4	22.2	48.2	37.3	14.0
	36		North Shield	93.3	93.3	1.6	22.3	55.9	33.7	12.2
	36		South Shield	107.5	107.5	1.2	32.1	48.4	37.2	14.0
	37		North Shield	104.3	104.3	1.2	22.3	23.7	32.5	12.1
	37		South Shield	109.6	109.6	1.2	22.1	47.6	37.6	14.3
	38		North Shield	96.1	96.1	1.0	17.9	44.9	31.7	11.8
	38		South Shield	105.7	105.7	1.2	25.9	54.1	36.2	13.8
	39		South Shield	97.7	97.7	1.3	32.1	62.7	36.8	13.8
	39		North Shield	93.9	93.9	1.2	22.3	37.7	30.7	11.4
	40		North Shield	93.9	93.9	1.4	22.2	43.9	32.3	11.9
	40		South Shield	96.8	96.8	1.2	33.0	62.9	35.8	13.7
	41		North Shield	96.2	96.2	1.1	22.3	24.3	31.1	11.6
	41		South Shield	100.2	100.2	1.5	22.3	62.8	37.4	13.9
	42		North Shield	97.3	97.3	1.3	22.1	45.0	31.8	11.8
	42		South Shield	107.6	107.6	1.3	22.2	47.2	37.3	14.0
	43		North Shield	89.8	89.8	1.1	22.1	45.0	31.7	11.8
	43		South Shield	100.9	100.9	1.0	22.1	48.1	36.8	14.0
	44		South Shield							
	44		South Shield							
	45		North Shield	100.7	100.7	1.2	22.4	45.3	31.3	11.7
	45		South Shield	98.0	98.0	1.3	22.2	75.4	37.1	13.8
	46		North Shield	98.1	98.1	1.3	21.9	48.5	32.4	12.0
	46		South Shield	100.3	100.3	1.3	22.2	83.6	38.4	14.3

Table C-62. Test 62 north and south shield pressure-time values for sheep numbers 778 and 779.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/17/97	47	171	North Shield	93.8	93.8	1.2	22.4	44.9	31.7	11.8
	47		South Shield	97.5	97.5	1.6	22.2	88.3	37.8	14.1
	48		North Shield	104.8	104.8	1.1	22.1	22.4	32.8	12.0
	48		South Shield	103.8	103.8	1.5	22.2	46.7	38.6	14.3
	49		North Shield	103.6	103.6	1.1	22.3	43.6	30.7	11.6
	49		South Shield	99.1	99.1	1.4	22.2	83.8	37.5	13.9
	50		North Shield							
	50		South Shield							
Mean				99.7	99.7	1.3	23.8	50.4	35.2	13.1
SD				4.8	4.8	0.2	3.9	15.6	2.3	0.9

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-63. Test 63 north and south shield pressure-time values for sheep numbers 780 and 781.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/22/97	1	171	North Shield	103.6	103.6	1.2	22.5	48.5	37.4	13.9
	1		South Shield	102.2	102.2	1.2	36.4		35.7	16.3
	2		North Shield	102.5	102.5	1.1	22.8	46.7	35.4	13.2
	2		South Shield	87.9	87.9	1.0	33.5	48.3	33.3	13.0
	3		North Shield	96.8	96.8	1.3	33.0	46.7	36.7	13.7
	3		South Shield	100.5	100.5	1.3	22.2	48.2	37.3	14.1
	4		North Shield	102.5	102.5	1.1	22.7	46.7	36.1	13.7
	4		South Shield	99.5	99.5	1.2	22.3	48.2	36.8	13.9
	5		North Shield	109.4	109.4	1.3	22.4	46.7	36.7	13.7
	5		South Shield	107.7	107.7	1.3	22.2	48.4	37.4	14.1
	6		North Shield	100.2	100.2	1.3	24.0	46.5	36.4	13.5
	6		South Shield	106.0	106.0	1.2	32.2	62.9	36.7	13.9
	7		North Shield	107.7	107.7	1.2	22.3	44.7	36.4	13.6
	7		South Shield	99.4	99.4	1.7	27.6	122.5	36.9	13.6
	8		North Shield	109.4	109.4	1.2	23.5	44.1	37.3	13.7
	8		South Shield	94.5	94.5	1.5	23.7	66.0	37.4	13.7
	9		North Shield	113.4	113.4	1.2	23.9	43.9	36.3	13.6
	9		South Shield	98.3	98.3	1.7	32.2	65.7	38.3	14.0
	10		North Shield	96.8	96.8	1.2	22.3	46.7	36.4	13.5
	10		South Shield	90.6	90.6	1.2	33.5	48.7	34.7	13.4
	11		North Shield	113.4	113.4	1.1	22.3	46.6	37.1	13.6
	11		South Shield	90.5	90.5	0.9	32.3	83.6	33.7	13.3
	12		North Shield	105.4	105.4	1.3	22.4	45.0	38.1	13.9
	12		South Shield	101.9	101.9	1.2	33.4	56.1	35.7	13.7
	13		North Shield	110.6	110.6	1.2	22.4	44.4	37.0	13.8
	13		South Shield	100.0	100.0	1.6	32.2	84.1	35.9	13.3
	14		North Shield	116.3	116.3	1.0	22.6	46.5	38.9	14.3
	14		South Shield	95.6	95.6	1.5	32.2	85.9	35.4	13.2
	15		North Shield	109.4	109.4	1.0	27.1	42.0	36.4	13.6
	15		South Shield	92.2	92.2	1.6	32.4	84.2	36.1	13.4
	16		North Shield	100.2	100.2	1.1	22.1	46.6	36.8	13.7
	16		South Shield	96.7	96.7	0.9	27.4	65.1	33.2	12.8
	17		North Shield	91.0	91.0	1.3	36.4	47.5	37.9	13.9
	17		South Shield	100.5	100.5	1.2	33.5	70.0	34.3	13.1
	18		North Shield	97.9	97.9	1.3	32.0	46.4	37.8	13.9
	18		South Shield	91.7	91.7	1.1	19.5	111.7	34.0	13.1
	19		North Shield							
	19		South Shield							
	20		North Shield	103.3	103.3	1.2	22.4	55.4	38.4	14.0
	20		South Shield	96.7	96.7	1.2	33.5	75.3	34.2	13.4
	21		North Shield	90.4	90.4	1.2	36.3	47.4	37.0	13.7
	21		South Shield	95.0	15.5	1.5	23.4	84.7	35.4	13.5
	22		North Shield	106.5	106.5	1.2	22.2	44.2	37.8	13.9
	22		South Shield	100.0	100.0	1.2	33.5	76.5	34.7	13.2
	23		North Shield	116.3	116.3	1.2	22.1	45.1	37.8	13.9
	23		South Shield	101.1	101.1	1.5	22.1	87.9	35.3	13.5

Table C-63. Test 63 north and south shield pressure-time values for sheep numbers 780 and 781.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/22/97	24	171	North Shield	98.5	98.5	1.3	22.3	47.5	38.3	13.9
	24		South Shield	97.3	97.3	1.5	33.4	70.0	34.9	13.4
	25		North Shield	111.1	111.1	1.0	22.3	46.6	36.7	13.7
	25		South Shield	104.4	104.4	1.5	46.2	95.4	37.0	13.8
	26		North Shield	96.2	96.2	1.2	23.8	46.6	37.6	13.9
	26		South Shield	98.4	98.4	1.7	23.4	62.7	35.8	13.4
	27		North Shield	108.8	108.8	1.2	22.3	46.6	39.0	14.3
	27		South Shield	101.1	101.1	1.1	22.2	48.4	34.8	13.4
	28		North Shield	118.1	118.1	1.2	22.2	41.4	38.4	14.2
	28		South Shield	93.9	93.9	1.6	23.4	48.2	35.9	13.4
	29		North Shield	112.3	112.3	1.1	23.8	43.8	38.6	14.2
	29		South Shield	96.7	96.7	1.1	32.0	83.4	34.6	13.4
	30		North Shield	105.5	105.5	1.2	22.2	44.8	38.5	14.2
	30		South Shield	105.5	105.5	1.5	32.0	83.2	34.3	13.0
	31		North Shield	108.8	108.8	1.0	22.2	43.7	37.0	13.7
	31		South Shield	97.8	97.8	1.5	33.2	66.5	35.5	13.3
	32		North Shield	105.4	105.4	1.2	22.3	46.6	38.4	14.1
	32		South Shield	99.6	99.6	1.4	22.2	57.9	34.6	13.1
	33		North Shield	108.3	108.3	1.0	23.9	46.6	38.1	14.1
	33		South Shield	106.7	106.7	1.3	22.2	62.8	33.9	13.0
	34		North Shield	122.1	122.1	1.1	22.4	56.0	37.4	13.9
	34		South Shield	98.4	98.4	1.7	32.2	69.8	36.5	13.6
	35		North Shield	110.0	110.0	1.1	22.3	56.1	38.0	14.0
	35		South Shield	101.1	101.1	1.1	32.1	74.6	34.5	13.4
	36		North Shield	104.8	104.8	1.0	23.6	48.2	38.2	14.0
	36		South Shield	97.2	97.2	1.6	32.2	67.5	33.6	12.7
	37		North Shield	115.2	115.2	0.9	22.5	44.8	38.7	14.3
	37		South Shield	99.6	99.6	1.6	32.0	62.7	35.5	13.3
	38		North Shield	115.7	115.7	1.2	22.2	43.6	38.8	14.2
	38		South Shield	87.3	87.3	1.2	40.9	83.8	33.2	12.9
	39		North Shield	102.5	102.5	1.3	24.8	62.0	37.3	13.9
	39		South Shield	101.1	101.1	1.6	31.9	48.1	37.0	13.8
	40		North Shield	105.4	105.4	1.1	22.2	43.6	35.7	13.4
	40		South Shield	107.1	107.1	1.5	22.1	83.7	38.6	14.2
	41		North Shield	110.6	110.6	1.1	23.7	46.6	38.0	14.1
	41		South Shield	104.4	104.4	1.1	25.7	48.1	35.5	13.6
	42		North Shield	103.1	103.1	1.2	22.3	47.6	36.4	13.5
	42		South Shield	104.4	104.4	1.1	22.1	48.2	36.7	14.0
	43		North Shield	107.1	107.1	1.2	22.4	39.9	37.7	14.0
	43		South Shield	105.5	105.5	1.5	22.2	89.0	36.9	13.5
	44		North Shield	102.5	102.5	1.2	23.8	46.6	36.5	13.8
	44		South Shield	102.2	102.2	1.5	32.1	73.1	37.8	14.0
	45		North Shield	104.2	104.2	1.1	22.3	46.4	37.3	14.0
	45		South Shield	99.5	99.5	1.5	22.1	62.4	37.8	14.0
	46		North Shield	102.5	102.5	1.3	23.9	62.3	36.5	13.7
	46		South Shield	100.6	100.6	1.5	32.1	57.6	37.2	13.7

Table C-63. Test 63 north and south shield pressure-time values for sheep numbers 780 and 781.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/22/97	47	171	North Shield	104.8	104.8	1.1	22.4	44.6	35.9	13.5
	47		South Shield	101.6	101.6	1.5	32.2	55.3	37.9	13.9
	48		North Shield	105.4	105.4	1.1	23.8	55.9	37.5	13.9
	48		South Shield	104.4	104.4	1.6	22.1	74.6	37.3	13.8
	49		North Shield							
	49		South Shield							
	50		North Shield							
	50		South Shield							
Mean				102.7	101.9	1.3	26.5	58.3	36.6	13.7
SD				6.8	11.3	0.2	5.5	16.9	1.5	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-64. Test 64 north and south shield pressure-time values for sheep numbers 782 and 783.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/24/97	1	127	North Shield	78.3	78.3	0.9	22.6	55.6	32.7	12.1
	1		South Shield	79.5	79.5	1.1	25.2	49.3	31.5	12.1
	2		North Shield	76.6	76.6	1.0	36.1	55.6	32.8	12.2
	2		South Shield	76.7	76.7	1.1	32.7	45.3	31.7	12.1
	3		North Shield	78.9	78.9	1.0	24.5	64.2	32.7	12.2
	3		South Shield	75.6	75.6	1.1	22.5	49.9	30.9	11.8
	4		North Shield	82.9	82.9	0.9	22.5	56.5	32.1	12.1
	4		South Shield	76.2	76.2	1.0	22.6	48.6	30.2	11.6
	5		North Shield	85.2	85.2	0.9	22.6	55.5	31.8	12.0
	5		South Shield	77.9	77.9	1.1	26.0	49.1	31.0	11.9
	6		North Shield	79.0	79.0	1.0	22.7	45.6	32.4	12.2
	6		South Shield	82.8	82.8	1.1	32.8	48.0	30.7	11.8
	7		North Shield	79.6	79.6	1.0	23.7	45.5	32.3	12.1
	7		South Shield	81.7	81.7	1.2	23.5	48.2	30.8	11.8
	8		North Shield	76.0	76.0	0.9	22.6	56.1	31.8	12.0
	8		South Shield	79.5	79.5	1.3	32.1	58.7	30.0	11.5
	9		North Shield	78.9	78.9	1.0	22.5	54.7	32.3	12.1
	9		South Shield	77.3	77.3	1.1	32.9	54.0	31.7	12.1
	10		North Shield	77.8	77.8	1.0	22.7	60.9	32.1	12.0
	10		South Shield	84.0	84.0	1.1	22.5	60.2	31.4	12.1
	11		North Shield	83.5	83.5	1.0	22.5	47.4	32.1	11.9
	11		South Shield	77.9	77.9	1.0	32.9	75.8	30.0	11.1
	12		North Shield	83.0	83.0	1.0	22.6	55.0	32.5	12.1
	12		South Shield	80.1	80.1	1.1	33.6	82.3	31.9	12.1
	13		North Shield	81.2	81.2	0.9	22.7	44.0	31.5	11.8
	13		South Shield	75.1	75.1	1.1	32.9	84.3	31.2	11.9
	14		North Shield	81.2	81.2	1.0	23.5	55.9	31.8	11.9
	14		South Shield	77.3	77.3	1.0	34.3	81.9	29.2	11.4
	15		North Shield	86.5	86.5	1.1	36.8	55.0	32.6	12.3
	15		South Shield	86.2	86.2	1.1	19.8	84.4	31.5	12.1
	16		North Shield	87.5	87.5	1.0	22.3	55.0	32.1	11.9
	16		South Shield	79.5	79.5	1.1	19.7	74.7	31.6	12.0
	17		North Shield	81.8	81.8	1.0	22.4	55.3	32.7	12.2
	17		South Shield	84.5	84.5	1.1	19.9	92.1	30.8	11.7
	18		North Shield	86.5	86.5	1.0	36.9	55.0	32.0	11.9
	18		South Shield	79.0	79.0	1.1	19.6	57.9	31.2	11.9
	19		North Shield	86.4	86.4	1.0	37.2	45.3	31.1	11.6
	19		South Shield	85.6	85.6	1.2	20.7	83.4	31.2	12.0
	20		North Shield	82.4	82.4	1.1	37.0	42.2	31.8	12.1
	20		South Shield	75.6	75.6	1.0	35.3	111.4	30.8	11.8
	21		North Shield	78.9	78.9	1.0	37.2	56.5	31.4	11.8
	21		South Shield	75.7	75.7	1.0	22.2	96.9	30.3	11.6
	22		North Shield	84.7	84.7	1.0	36.9	45.7	31.9	12.3
	22		South Shield	79.6	76.3	1.1	32.9	110.8	31.9	12.1
	23		North Shield	80.6	80.6	1.0	36.9	40.8	32.8	12.4
	23		South Shield	77.3	75.7	1.6	35.3	87.7	32.2	12.0

Table C-64. Test 64 north and south shield pressure-time values for sheep numbers 782 and 783.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/24/97	24	127	North Shield							
	24		South Shield							
	25		North Shield	88.7	88.7	0.9	22.5	45.0	31.6	11.8
	25		South Shield	84.5	84.5	1.0	26.1	85.7	32.4	12.5
	26		North Shield	79.5	79.5	1.0	36.6	56.4	31.3	11.8
	26		South Shield	74.6	71.8	1.1	34.5	98.1	31.5	12.0
	27		North Shield	81.2	81.2	1.0	37.0	45.5	31.7	11.9
	27		South Shield	84.0	84.0	1.0	32.9	84.1	31.9	12.1
	28		North Shield	83.0	83.0	1.0	32.4	56.6	31.8	11.9
	28		South Shield	81.7	81.7	1.1	32.9	55.3	31.4	12.0
	29		North Shield	81.8	81.8	1.0	36.7	46.9	31.6	12.0
	29		South Shield	85.1	85.1	1.2	33.0	75.0	31.8	12.0
	30		North Shield	81.2	81.2	1.0	22.4	48.9	31.6	11.9
	30		South Shield	84.5	84.5	1.0	33.0	76.0	31.5	12.3
	31		North Shield	85.1	85.1	1.0	36.9	41.6	32.4	12.1
	31		South Shield	81.2	81.2	1.0	47.2	134.4	30.2	10.6
	32		North Shield	92.8	92.8	1.0	29.2	48.1	32.9	12.4
	32		South Shield	82.9	82.9	1.1	32.8	111.6	31.8	12.2
	33		North Shield	84.1	84.1	1.0	22.5	42.7	33.3	12.4
	33		South Shield	81.7	81.7	1.1	32.3	55.1	31.4	12.1
	34		North Shield	85.3	85.3	1.0	37.8	41.3	33.0	12.4
	34		South Shield	87.8	87.8	1.0	26.2	54.4	32.0	12.2
	35		North Shield	83.5	83.5	1.0	22.5	44.3	32.5	12.3
	35		South Shield	88.4	88.4	1.0	20.7	58.6	31.9	12.2
	36		North Shield	79.6	79.6	1.4	38.0	44.3	33.6	12.5
	36		South Shield	81.2	80.6	1.0	44.8	94.2	32.8	12.4
	37		North Shield	81.8	81.8	0.9	32.2	44.3	33.5	12.6
	37		South Shield	81.2	81.2	1.1	32.9	66.1	31.9	12.1
	38		North Shield	78.3	78.3	1.0	22.5	50.6	33.6	12.7
	38		South Shield	80.1	80.1	1.1	44.8	83.8	32.3	12.3
	39		North Shield	80.1	80.1	1.0	32.4	50.9	33.1	12.5
	39		South Shield	81.2	81.2	1.0	22.4	88.7	32.2	12.2
	40		North Shield	83.5	83.5	1.0	32.2	47.2	32.3	12.3
	40		South Shield	82.3	82.3	1.0	20.7	84.5	32.2	12.4
	41		North Shield	84.8	84.8	0.9	23.3	44.2	32.3	12.3
	41		South Shield	88.4	88.4	1.1	27.2	56.4	30.4	11.8
	42		North Shield	87.5	87.5	1.0	22.5	42.3	33.6	12.7
	42		South Shield	86.2	86.2	1.1	19.9	84.4	31.3	11.9
	43		North Shield	74.3	74.3	0.9	32.3	48.4	32.4	12.3
	43		South Shield	85.1	85.1	1.0	19.7	84.9	31.7	12.0
	44		North Shield	94.5	94.5	0.9	28.7	42.1	32.7	12.5
	44		South Shield	82.3	82.3	1.1	32.3	70.9	31.4	12.1
	45		North Shield	81.8	81.8	1.0	32.4	42.7	34.1	12.8
	45		South Shield	87.2	87.2	1.0	19.5	63.6	31.1	12.2
	46		North Shield	78.9	78.9	1.0	32.2	68.2	34.6	13.1
	46		South Shield	82.3	82.3	1.0	34.6	49.2	32.0	12.2

Table C-64. Test 64 north and south shield pressure-time values for sheep numbers 782 and 783.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/24/97	47	127	North Shield	84.7	84.7	1.0	22.6	48.1	33.8	12.9
	47		South Shield	80.6	80.6	1.0	34.4	65.7	31.5	12.1
	48		North Shield	80.6	80.6	1.1	32.2	42.7	34.7	13.1
	48		South Shield	82.9	82.9	1.0	19.6	66.5	31.4	12.0
	49		North Shield							
	49		South Shield							
	50		North Shield							
	50		South Shield							
Mean				81.9	81.8	1.0	28.9	61.9	31.9	12.1
SD				3.9	4.0	0.1	6.8	19.5	1.0	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-65. Test 65 north and south shield pressure-time values for sheep numbers 784 and 785.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/29/97	1	127	North Shield	74.8	74.8	0.9	22.3	42.5	27.3	10.2
	1		South Shield	81.2	81.2	1.0	24.8	40.6	30.5	11.8
	2		North Shield	74.3	74.3	0.9	22.2	23.1	27.5	10.2
	2		South Shield	82.9	82.9	1.1	22.2	48.5	30.6	11.8
	3		North Shield	70.8	70.8	1.0	22.2	38.8	27.7	10.3
	3		South Shield	82.3	82.3	1.1	26.2	48.3	30.9	11.9
	4		North Shield	70.2	70.2	0.9	22.2	40.2	27.5	10.3
	4		South Shield	81.7	81.7	1.5	33.1	88.2	30.7	11.7
	5		North Shield	83.5	83.5	0.9	18.9	23.4	27.6	10.3
	5		South Shield	83.4	83.4	1.0	22.2	48.4	30.1	11.8
	6		North Shield	70.8	70.8	1.0	22.3	36.3	28.2	10.5
	6		South Shield	86.2	86.2	1.0	33.3	48.6	29.9	11.5
	7		North Shield	78.3	78.3	0.9	22.3	39.4	27.7	10.4
	7		South Shield	86.1	86.1	1.0	22.0	48.5	30.4	11.8
	8		North Shield	78.3	78.3	0.9	22.2	37.8	28.3	10.5
	8		South Shield	81.7	81.7	1.1	32.3	83.9	30.2	11.6
	9		North Shield	70.8	70.8	0.9	22.2	23.8	27.6	10.5
	9		South Shield	82.9	82.9	1.0	22.7	87.2	29.9	11.4
	10		North Shield	84.1	84.1	0.9	22.2	37.2	27.6	10.5
	10		South Shield	90.6	90.6	1.0	19.3	48.4	30.3	11.6
	11		North Shield	74.8	74.8	0.9	22.4	39.1	27.6	10.3
	11		South Shield	81.2	81.2	1.0	39.0	76.0	30.1	11.7
	12		North Shield	73.7	73.7	1.0	22.3	38.2	27.7	10.2
	12		South Shield	79.5	79.5	1.0	22.1	88.1	30.9	11.9
	13		North Shield	80.0	80.0	0.9	22.2	44.1	28.0	10.4
	13		South Shield	85.6	85.6	1.1	19.3	76.1	30.4	11.6
	14		North Shield	81.7	81.7	0.9	22.3	40.0	27.1	10.0
	14		South Shield	88.9	88.9	1.1	22.1	74.9	30.4	11.7
	15		North Shield	75.4	75.4	0.9	22.3	37.6	26.9	10.0
	15		South Shield	84.5	84.5	1.0	20.9	74.3	29.2	11.4
	16		North Shield	70.8	70.8	0.9	22.3	40.5	27.7	10.4
	16		South Shield	87.3	87.3	1.2	19.3	88.4	30.5	11.8
	17		North Shield	75.4	75.4	0.9	22.3	39.1	27.9	10.4
	17		South Shield	82.9	82.9	1.2	22.2	97.7	31.1	11.9
	18		North Shield	74.3	74.3	0.9	22.3	39.1	28.4	10.6
	18		South Shield	86.7	86.7	1.1	19.2	83.7	30.8	11.8
	19		North Shield	81.7	81.7	0.9	22.2	36.2	27.7	10.2
	19		South Shield	84.5	84.5	1.1	19.4	76.1	29.7	11.5
	20		North Shield	74.8	74.8	0.9	22.3	40.7	27.7	10.4
	20		South Shield	81.2	81.2	1.1	19.2	76.1	29.9	11.5
	21		North Shield	83.5	83.5	0.9	18.7	37.3	27.4	10.2
	21		South Shield	87.8	87.8	1.0	19.1	52.6	29.6	11.5
	22		North Shield	83.5	83.5	0.9	22.2	39.0	27.9	10.5
	22		South Shield	82.9	82.9	1.1	22.0	88.2	29.9	11.5
	23		North Shield	81.2	81.2	0.9	22.2	37.0	28.1	10.5
	23		South Shield	92.8	92.8	1.2	19.4	65.3	29.9	11.5

Table C-65. Test 65 north and south shield pressure-time values for sheep numbers 784 and 785.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/29/97	24	127	North Shield	81.2	81.2	1.0	18.8	22.4	27.6	10.3
	24		South Shield	81.7	81.7	1.1	19.6	76.0	30.4	11.5
	25		North Shield	73.7	73.7	0.9	22.3	36.6	28.0	10.4
	25		South Shield	85.6	85.6	1.2	25.2	88.3	30.9	11.7
	26		North Shield	77.6	77.6	0.9	22.3	36.7	28.1	10.4
	26		South Shield	84.5	84.5	1.1	19.3	75.9	30.9	11.8
	27		North Shield	74.3	74.3	1.0	22.2	36.4	27.4	10.1
	27		South Shield	87.8	87.8	1.0	22.0	63.0	30.0	11.5
	28		North Shield	82.8	82.8	0.9	11.1	24.8	28.0	10.5
	28		South Shield	80.1	80.1	1.0	19.2	83.9	30.1	11.6
	29		North Shield	71.4	71.4	0.9	22.2	40.2	28.2	10.3
	29		South Shield	88.9	88.9	1.1	24.3	54.9	29.9	11.5
	30		North Shield	76.6	76.6	0.9	22.2	38.9	27.3	10.2
	30		South Shield	84.0	84.0	1.1	24.3	48.5	30.2	11.5
	31		North Shield	80.0	80.0	0.9	22.1	37.5	28.1	10.5
	31		South Shield	83.4	83.4	1.0	22.1	76.1	30.3	11.6
	32		North Shield	73.7	73.7	0.9	22.1	38.6	27.9	10.4
	32		South Shield	91.7	91.7	1.0	19.2	65.8	30.8	11.7
	33		North Shield	79.4	79.4	0.9	22.3	38.3	28.3	10.5
	33		South Shield	84.5	84.5	1.0	24.7	71.0	30.5	11.8
	34		North Shield	81.2	81.2	0.9	22.2	38.9	27.9	10.3
	34		South Shield	89.5	89.5	1.0	22.0	47.0	30.5	11.7
	35		North Shield	80.6	80.6	0.9	17.6	39.1	26.6	10.0
	35		South Shield	80.6	80.6	1.1	22.0	48.4	31.4	11.9
	36		North Shield	78.3	78.3	0.9	22.3	40.1	27.3	10.3
	36		South Shield	81.7	81.7	1.1	32.7	54.4	30.6	11.6
	37		North Shield	79.4	79.4	0.9	22.3	32.7	27.4	10.4
	37		South Shield	82.3	82.3	1.1	32.1	74.9	30.9	11.8
	38		North Shield	81.2	81.2	1.0	11.0	32.1	27.8	10.5
	38		South Shield	82.9	82.9	1.0	26.4	76.1	31.1	11.8
	39		North Shield	85.8	85.8	1.0	22.4	32.2	26.9	10.2
	39		South Shield	78.4	78.4	1.0	22.0	86.3	30.7	11.7
	40		North Shield	80.6	80.6	0.9	22.4	38.8	26.4	10.0
	40		South Shield	84.0	84.0	1.4	32.1	82.8	31.9	11.8
	41		North Shield	81.7	81.7	0.9	22.3	38.9	26.9	10.1
	41		South Shield	85.1	85.1	1.1	32.0	70.6	31.2	11.9
	42		North Shield	82.9	82.9	0.9	10.3	38.1	27.3	10.4
	42		South Shield	80.1	80.1	1.1	19.4	75.9	32.1	12.2
	43		North Shield	87.5	87.5	0.9	22.3	38.0	27.5	10.3
	43		South Shield	87.8	87.8	1.0	26.0	62.9	31.4	12.0
	44		North Shield	82.3	82.3	0.9	22.3	38.1	27.5	10.4
	44		South Shield	83.4	83.4	1.0	21.9	68.8	31.4	11.9
	45		North Shield	82.3	82.3	1.0	22.4	39.6	27.0	10.1
	45		South Shield	88.9	88.9	1.0	21.9	70.8	31.7	12.0
	46		North Shield	79.4	79.4	1.0	22.3	40.4	26.2	9.9
	46		South Shield	79.5	79.5	1.0	32.0	48.9	30.5	11.7

Table C-65. Test 65 north and south shield pressure-time values for sheep numbers 784 and 785.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
4/29/97	47	127	North Shield	83.5	83.5	1.0	10.4	32.2	26.3	9.9
	47		South Shield	81.7	81.7	1.0	19.5	83.9	30.8	11.7
	48		North Shield	79.4	79.4	0.9	12.5	35.5	26.3	10.0
	48		South Shield	79.5	79.5	1.4	32.1	83.0	32.1	11.9
	49		North Shield	80.6	80.6	0.9	22.3	39.9	26.3	9.9
	49		South Shield	84.0	84.0	1.0	32.1	65.6	31.1	11.8
	50		North Shield	81.2	81.2	0.9	22.0	23.9	27.4	10.3
	50		South Shield	81.7	81.7	1.0	19.4	48.5	32.1	12.1
Mean				81.3	81.3	1.0	22.5	52.8	29.1	11.0
SD				4.8	4.8	0.1	4.7	20.0	1.7	0.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-66. Test 66 north and south shield pressure-time values for sheep numbers 786 and 787.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/1/97	1	127	North Shield							
	1		South Shield	83.4	83.4	1.6	22.2	46.1	31.9	11.8
	2		North Shield							
	2		South Shield	81.3	81.3	1.2	31.8	47.8	30.3	11.5
	3		North Shield							
	3		South Shield	81.8	81.8	1.1	23.5	62.9	31.0	11.8
	4		North Shield							
	4		South Shield	77.4	77.4	1.2	19.3	61.3	30.5	11.6
	5		North Shield							
	5		South Shield							
	6		North Shield							
	6		South Shield							
	7		North Shield							
	7		South Shield							
	8		North Shield							
	8		South Shield							
	9		North Shield							
	9		South Shield							
	10		North Shield							
	10		South Shield	79.6	79.6	1.1	32.1	74.0	31.1	11.7
	11		North Shield							
	11		South Shield	81.8	81.8	1.5	21.7	74.3	30.1	11.4
	12		North Shield							
	12		South Shield	77.9	77.9	1.1	32.0	83.2	30.5	11.6
	13		North Shield							
	13		South Shield	87.9	87.9	1.2	22.2	66.9	29.6	11.5
	14		North Shield							
	14		South Shield	79.0	79.0	1.1	31.8	66.6	30.1	11.7
	15		North Shield							
	15		South Shield	82.4	82.4	1.1	21.2	66.2	30.7	11.8
	16		North Shield							
	16		South Shield	82.3	82.3	1.1	26.0	65.0	30.8	11.7
	17		North Shield							
	17		South Shield	82.9	82.9	1.5	31.9	85.8	32.6	12.0
	18		North Shield							
	18		South Shield	81.2	81.2	1.2	31.9	58.8	31.3	11.7
	19		North Shield							
	19		South Shield	81.7	81.7	1.4	32.1	82.7	32.3	11.9
	20		North Shield							
	20		South Shield	84.5	84.5	1.1	32.0	111.6	31.4	11.8
	21		North Shield							
	21		South Shield	86.2	86.2	1.1	32.0	76.2	31.9	12.0
	22		North Shield							
	22		South Shield	81.2	81.2	1.1	19.4	63.0	30.3	11.7
	23		North Shield							
	23		South Shield	87.8	87.8	1.0	26.1	75.2	31.4	11.8

Table C-66. Test 66 north and south shield pressure-time values for sheep numbers 786 and 787.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/1/97	24	127	North Shield							
	24		South Shield	84.0	84.0	1.1	22.0	84.0	30.9	11.7
	25		North Shield							
	25		South Shield	83.4	83.4	1.0	19.2	86.0	30.0	10.8
	26		North Shield							
	26		South Shield	77.3	77.3	1.2	32.0	68.7	30.7	11.6
	27		North Shield							
	27		South Shield	83.4	83.4	1.1	19.4	70.3	31.7	11.9
	28		North Shield							
	28		South Shield	81.2	81.2	1.0	19.3	53.8	31.0	11.7
	29		North Shield							
	29		South Shield	84.5	84.5	1.1	22.0	76.3	30.7	11.8
	30		North Shield							
	30		South Shield	81.3	81.3	1.0	26.0	70.6	30.4	11.6
	31		North Shield							
	31		South Shield	74.0	74.0	1.1	32.1	68.6	29.9	11.5
	32		North Shield							
	32		South Shield	79.0	79.0	1.1	19.9	76.5	30.2	11.5
	33		North Shield							
	33		South Shield	82.3	82.3	1.1	22.2	48.2	30.8	11.8
	34		North Shield							
	34		South Shield	79.5	79.5	1.1	19.9	62.8	30.7	11.6
	35		North Shield							
	35		South Shield	82.3	82.3	1.1	19.2	48.4	30.4	11.5
	36		North Shield							
	36		South Shield	76.8	76.8	1.1	31.8	61.4	29.3	11.3
	37		North Shield							
	37		South Shield	80.2	80.2	1.1	31.8	65.8	30.8	11.6
	38		North Shield							
	38		South Shield	83.4	83.4	1.1	25.9	48.2	30.6	11.8
	39		North Shield							
	39		South Shield	80.1	80.1	1.1	26.0	48.3	30.6	11.6
	40		North Shield							
	40		South Shield	81.3	81.3	1.4	22.1	74.9	31.2	11.7
	41		North Shield							
	41		South Shield	81.7	81.7	1.1	31.9	76.4	30.4	11.5
	42		North Shield							
	42		South Shield	79.0	79.0	1.1	33.3	76.2	30.1	11.4
	43		North Shield							
	43		South Shield	83.4	83.4	1.0	22.1	66.8	30.2	11.4
	44		North Shield							
	44		South Shield	79.0	79.0	1.1	33.2	65.8	30.6	11.6
	45		North Shield							
	45		South Shield	81.2	81.2	1.1	19.3	48.5	30.3	11.5
	46		North Shield							
	46		South Shield	79.6	79.6	1.1	22.2	76.5	30.6	11.6

Table C-66. Test 66 north and south shield pressure-time values for sheep numbers 786 and 787.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/1/97	47	127	North Shield							
	47		South Shield	81.2	81.2	1.0	19.1	61.3	30.5	11.6
	48		North Shield							
	48		South Shield	84.5	84.5	1.1	19.2	48.4	30.3	11.6
	49		North Shield							
	49		South Shield	80.7	80.7	1.1	23.6	67.1	30.3	11.6
	50		North Shield							
	50		South Shield							
Mean				81.5	81.5	1.1	25.5	67.4	30.7	11.6
SD				2.8	2.8	0.1	5.4	13.3	0.7	0.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-67. Test 67 north and south shield pressure-time values for sheep numbers 790 and 791.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/8/97	1	90	North Shield	58.1	58.1	0.9	22.3	40.1	22.5	8.4
	1		South Shield	67.9	67.9	1.1	27.8	45.4	25.1	9.5
	2		North Shield	74.3	74.3	0.9	23.8	50.6	26.2	9.8
	2		South Shield	67.9	67.9	1.0	26.3	54.3	24.6	9.4
	3		North Shield	72.5	72.5	0.9	23.9	42.9	26.9	10.0
	3		South Shield	69.0	69.0	1.0	23.8	47.7	25.1	9.6
	4		North Shield	72.6	72.6	1.0	22.1	44.6	26.3	9.8
	4		South Shield	70.2	70.2	1.1	23.8	57.2	25.7	10.5
	5		North Shield	71.4	71.4	0.9	23.8	43.2	26.1	9.9
	5		South Shield	75.1	75.1	1.1	23.6	47.3	25.2	10.0
	6		North Shield	69.1	69.1	0.9	22.5	43.4	26.1	9.8
	6		South Shield	70.2	70.2	1.3	32.0	61.4	25.1	9.5
Mean				69.9	69.9	1.0	24.6	48.2	25.4	9.7
SD				4.4	4.4	0.1	2.8	6.5	1.1	0.5

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-68. Test 68 north and south shield pressure-time values for sheep numbers 792 and 793.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/11/97	1	90	North Shield	76.0	76.0	1.0	25.1	110.3	26.1	10.0
	1		South Shield	78.4	78.4	1.0	23.8	38.8	25.9	10.2
	2		North Shield	74.9	74.9	0.9	22.3	63.6	26.3	10.0
	2		South Shield	79.5	79.5	1.0	23.8	47.5	25.5	9.8
	3		North Shield	77.8	77.8	1.0	22.3	45.2	26.5	10.2
	3		South Shield	72.9	72.9	1.0	23.7	48.5	25.0	9.7
	4		North Shield	74.3	74.3	0.9	23.4	44.3	26.0	9.8
	4		South Shield	77.3	77.3	1.0	26.3	47.7	25.2	9.9
	5		North Shield	73.7	73.7	1.0	22.0	63.5	27.1	10.4
	5		South Shield	79.5	79.5	1.0	23.7	48.6	25.8	9.9
	6		North Shield	76.0	76.0	0.9	23.3	44.4	25.7	9.7
	6		South Shield	76.7	76.7	1.0	26.4	54.3	25.4	9.9
Mean				76.4	76.4	1.0	23.8	54.7	25.9	10.0
SD				2.2	2.2	0.0	1.4	19.0	0.6	0.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-69. Test 69 north and south shield pressure-time values for sheep numbers 794 and 795.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/15/97	1	90	North Shield	66.8	66.8	1.1	31.5	44.1	27.1	10.1
	1		South Shield	71.8	71.8	1.0	23.6	43.4	25.4	9.7
	2		North Shield	74.3	74.3	1.0	22.3	44.2	26.1	9.8
	2		South Shield	72.4	72.4	1.0	21.8	48.5	24.0	9.2
	3		North Shield	74.9	74.9	1.0	23.8	43.2	26.0	9.8
	3		South Shield	71.3	71.3	1.0	26.3	48.3	24.2	9.3
	4		North Shield	74.3	74.3	0.9	23.6	44.6	26.9	10.1
	4		South Shield	71.3	71.3	1.0	23.6	48.3	25.1	9.6
	5		North Shield	65.7	65.7	1.0	28.2	63.4	26.6	9.9
	5		South Shield	71.3	71.3	1.1	31.7	48.4	25.7	9.8
	6		North Shield	70.3	70.3	1.1	29.1	45.0	27.2	10.2
	6		South Shield	69.6	69.6	1.1	23.8	64.6	25.3	9.6
Mean				71.1	71.1	1.0	25.8	48.8	25.8	9.8
SD				2.8	2.8	0.1	3.5	7.4	1.1	0.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-70. Test 70 north and south shield pressure-time values for sheep numbers 796 and 797.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time						
				Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/20/97	1	90	North Shield	67.4	67.4	1.0	24.0	54.0	27.4	10.3
	1		South Shield	68.5	68.5	0.9	24.0	34.7	25.2	9.8
	2		North Shield	76.1	76.1	1.1	23.8	41.4	26.8	10.3
	2		South Shield	71.8	71.8	1.2	23.9	47.5	26.0	9.9
	3		North Shield	72.1	72.1	0.9	23.9	44.5	26.1	9.9
	3		South Shield	72.4	72.4	1.0	23.9	48.5	25.2	9.6
	4		North Shield	74.9	74.9	1.1	22.5	43.5	26.9	10.1
	4		South Shield	74.6	74.6	1.0	21.7	51.6	25.3	9.7
	5		North Shield	74.3	74.3	1.0	32.7	43.5	26.7	10.1
	5		South Shield	65.7	65.7	1.0	26.2	76.3	25.6	9.7
	6		North Shield	81.2	81.2	0.9	23.2	41.3	26.6	9.9
	6		South Shield	65.7	65.7	1.1	31.9	53.3	25.4	9.7
Mean				72.1	72.1	1.0	25.2	48.3	26.1	9.9
SD				4.6	4.6	0.1	3.5	10.4	0.8	0.2

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-71. Test 71 north and south shield pressure-time values for sheep numbers 798 and 799.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/22/97	1	90	North Shield							
	1		South Shield							
	2		North Shield	72.0	72.0	1.0	24.2	51.2	26.7	10.4
	2		South Shield	74.0	74.0	1.0	28.3	46.9	25.6	9.9
	3		North Shield	65.4	65.4	1.0	32.7	46.4	26.7	10.5
	3		South Shield	72.9	72.9	1.1	28.3	48.7	25.5	9.7
	4		North Shield	72.1	72.1	0.9	24.0	49.2	26.3	10.5
	4		South Shield	74.0	74.0	1.0	23.9	52.5	25.0	9.7
	5		North Shield	78.4	78.4	0.9	18.8	52.6	27.2	10.7
	5		South Shield	75.7	75.7	1.0	14.3	48.7	25.8	10.0
	6		North Shield	68.6	68.6	1.0	24.1	46.1	26.3	10.1
	6		South Shield	65.2	65.2	1.0	32.3	57.2	25.3	9.8
Mean				71.8	71.8	1.0	25.1	50.0	26.0	10.1
SD				4.3	4.3	0.0	5.7	3.5	0.7	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-72. Test 72 north and south shield pressure-time values for sheep numbers 800 and 801.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/26/97	1	90	North Shield	72.0	72.0	1.0			27.0	10.5
	1		South Shield	74.6	74.6	1.0	23.8	50.3	25.0	9.9
	2		North Shield	68.8	68.8	1.1	32.7	79.5	27.1	10.2
	2		South Shield	77.9	77.9	1.0	13.1	47.8	25.3	9.8
	3		North Shield	68.9	68.9	1.0	28.3	57.7	26.5	10.3
	3		South Shield	74.0	74.0	1.4	23.9	47.8	25.3	9.6
	4		North Shield	64.5	64.5	1.0	23.9	70.7	27.0	10.4
	4		South Shield	74.0	74.0	1.0	23.6	47.7	25.2	9.6
	5		North Shield	73.4	73.4	1.1	23.9	71.8	26.7	10.3
	5		South Shield	75.1	75.1	1.3	19.2	67.1	24.8	9.5
	6		North Shield	59.9	59.9	1.0	35.8	54.7	26.7	10.1
	6		South Shield	72.4	72.4	0.9	26.4	54.9	24.4	9.4
Mean				71.3	71.3	1.1	25.0	59.1	25.9	10.0
SD				5.0	5.0	0.1	6.1	11.3	1.0	0.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-73. Test 73 north and south shield pressure-time values for sheep numbers 802 and 803.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
5/29/97	1	90	North Shield	70.4	70.4	1.0			26.6	22.5
	1		South Shield	68.5	68.5	1.1	23.6	45.2	25.0	9.4
	2		North Shield	68.7	68.7	0.9	49.3		26.6	10.3
	2		South Shield	70.7	70.7	1.0	21.8	45.2	24.3	9.3
	3		North Shield	73.8	73.8	0.9	22.3	43.4	26.4	10.2
	3		South Shield	72.9	72.9	1.0	11.7	48.4	24.2	9.3
	4		North Shield	70.8	70.8	1.0	23.6		26.3	10.5
	4		South Shield	74.6	74.6	1.0	21.8	53.7	24.0	9.2
	5		North Shield	73.4	73.4	1.1	22.3	66.3	26.9	10.1
	5		South Shield	69.0	69.0	1.0	21.9	52.7	24.2	9.4
	6		North Shield	74.8	74.8	0.9	23.3	51.8	26.6	10.4
	6		South Shield	75.7	75.7	1.0	18.8	48.5	24.3	9.3
Mean				71.9	71.9	1.0	23.7	50.6	25.4	10.8
SD				2.6	2.6	0.1	9.2	6.9	1.2	3.7

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-74. Test 74 north and south shield pressure-time values for sheep numbers 804 and 805.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
6/3/97	1	1452	North Shield	362.1	362.1	0.8	17.5	19.5	135.1	46.0
	1		South Shield	371.1	371.1	1.0	5.4	11.7	119.2	41.9
	2		North Shield	334.5	334.5	0.9	10.0	23.2	137.2	47.1
	2		South Shield	390.4	390.4	1.1	7.6	19.6	122.7	43.0
	3		North Shield	369.6	369.6	0.9	11.0	20.9	131.9	45.4
	3		South Shield	339.0	339.0	0.9	9.7	32.8	123.9	43.5
	4		North Shield	324.7	324.7	0.9	16.8	40.2	132.6	45.4
	4		South Shield	336.8	336.8	0.0	4.0	4.0	13.8	42.2
	5		North Shield	335.7	335.7	0.9	8.4	30.8	128.8	44.1
	5		South Shield	350.1	350.1	1.0	9.3	23.2	119.4	42.0
	6		North Shield	368.0	368.0	0.9	7.2	34.4	128.7	44.3
	6		South Shield	403.6	403.6	0.9	7.7	19.4	115.8	40.7
Mean				357.1	357.1	0.9	9.5	23.3	117.4	43.8
SD				24.4	24.4	0.3	4.1	10.1	33.3	1.9

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-75. Test 75 north and south shield pressure-time values for sheep numbers 806 and 807.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
6/5/97	1	1452	North Shield	399.6	399.6	0.8	14.2	22.3	132.6	44.8
	1		South Shield	330.8	330.8	1.0	14.1	26.1	131.7	46.3
	2		North Shield	385.9	385.9	0.9	9.9	37.8	130.7	44.7
	2		South Shield	358.4	358.4	0.9	9.1	23.7	125.9	44.8
	3		North Shield	368.2	368.2	0.9	13.8	23.3	127.9	44.1
	3		South Shield	341.2	341.2	0.9	9.9	24.2	127.3	44.7
	4		North Shield	368.2	368.2	0.9	6.9	23.4	133.4	46.1
	4		South Shield	381.0	381.0	1.0	10.0	23.2	131.5	46.3
	5		North Shield	379.4	379.4	0.8	16.3	39.0	131.0	45.0
	5		South Shield	368.3	368.3	0.9	9.9	20.9	128.3	45.1
	6		North Shield	314.4	314.4	0.9	16.5	18.0	119.6	41.2
	6		South Shield	335.2	335.2	1.1	11.2	23.5	125.4	44.2
Mean				360.9	360.9	0.9	11.8	25.4	128.8	44.8
SD				25.5	25.5	0.1	3.1	6.4	3.9	1.4

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-76. Test 76 north and south shield pressure-time values for sheep numbers 808 and 809.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
6/8/97	1	1452	North Shield	387.4	387.4	0.8	7.2	17.2	134.6	45.4
	1		South Shield	421.9	421.9	0.9	5.3	17.8	126.9	44.5
	2		North Shield	419.1	419.1	0.9	7.5	33.6	134.2	46.1
	2		South Shield	448.9	448.9	0.9	5.2	19.1	133.2	46.8
	3		North Shield	387.5	387.5	0.9	10.2	19.5	136.9	46.8
	3		South Shield	426.2	426.2	1.1	5.8	19.3	128.9	45.2
	4		North Shield	408.2	408.2	0.8	14.5	17.9	138.6	47.7
	4		South Shield	416.3	416.3	0.9	12.3	21.9	130.1	45.6
	5		North Shield	385.2	385.2	0.9	13.9	30.7	132.4	45.8
	5		South Shield	392.0	392.0	1.0	5.3	13.1	126.0	44.4
	6		North Shield	390.9	390.9	0.8	16.6	19.9	131.1	45.3
	6		South Shield	407.5	407.5	0.9	9.1	23.6	124.9	43.9
Mean				407.6	407.6	0.9	9.4	21.1	131.5	45.6
SD				19.8	19.8	0.1	4.0	5.8	4.3	1.1

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-77. Test 77 north and south shield pressure-time values for sheep numbers 810 and 811.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
6/12/97	1	1452	North Shield	359.8	359.8	0.8	7.5	31.1	135.3	46.1
	1		South Shield	393.7	393.7	0.9	5.3	12.3	115.6	40.6
	2		North Shield	365.0	365.0	0.8	13.7	22.4	130.1	44.5
	2		South Shield	390.9	390.9	0.9	5.4	11.5	122.5	43.1
	3		North Shield	360.3	360.3	0.9	13.8	22.2	130.5	45.0
	3		South Shield	400.3	400.3	1.0	8.2	19.8	121.8	43.0
	4		North Shield	338.8	338.8	0.8	13.8		133.5	46.0
	4		South Shield	342.9	342.9	1.0	9.7	24.8	121.6	43.0
	5		North Shield	342.1	342.1	0.8	17.6	30.8	137.2	47.0
	5		South Shield	366.1	366.1	1.0	14.6	19.4	122.7	43.3
	6		North Shield	338.6	338.6	0.9	14.4	23.4	134.1	46.1
	6		South Shield	354.5	354.5	1.0	9.9	23.7	121.9	43.0
Mean				362.8	362.8	0.9	11.2	21.9	127.2	44.2
SD				21.8	21.8	0.1	4.0	6.2	7.0	1.9

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-78. Test 78 north and south shield pressure-time values for sheep numbers 812.

Date	Shot Number	Charge Weight,g	Gage Location	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
6/17/97	1	1452	North Shield	343.1	343.1	0.8	8.1	31.1	135.5	45.6
	1		South Shield	358.4	358.4	1.0	8.2		119.6	42.0
	2		North Shield	333.3	333.3	0.8	13.7	21.4	138.6	47.6
	2		South Shield	368.3	368.3	1.1	9.5		121.5	42.8
	3		North Shield	365.6	365.6	0.9	7.7	17.8	135.0	46.2
	3		South Shield	341.8	341.8	0.9	9.8	23.9	120.0	42.3
	4		North Shield	357.5	357.5	0.8	16.1		134.1	46.2
	4		South Shield	336.8	336.8	1.0	11.1	24.1	121.7	43.0
	5		North Shield	325.3	325.3	0.8	11.8	31.6	130.7	44.7
	5		South Shield	366.1	366.1	1.0	9.6		119.6	42.2
	6		North Shield							
	6		South Shield							
Mean				349.6	349.6	0.9	10.6	25.0	127.6	44.3
SD				15.4	15.4	0.1	2.7	5.4	7.8	2.1

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure

Table C-79. Average north and south shield pressure-time values for all sheep tests.

Date	Test Number	Number of Shots	Charge Weight,g	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
8/8/96	1	6	1452	377.3	377.3	1.0	7.2	20.8	148.2	53.3
8/13/97	2	6	997	252.2	128.4	1.3	13.4	35.8	102.1	36.2
8/15/97	3	6	675	183.8	84.2	1.4	27.2	45.9	81.0	28.8
8/21/96	4	6	447	145.3	56.7	1.2	33.9	49.8	58.5	23.3
8/23/96	5	6	285	116.2	83.7	1.2	34.9	52.8	44.9	18.9
8/29/96	6	6	285	121.8	83.9	1.1	29.2	52.5	44.0	17.9
9/3/96	7	6	285	121.0	103.7	1.2	30.6	52.1	44.8	17.9
9/5/96	8	6	285	122.8	112.5	1.1	30.2	46.1	44.7	17.7
9/10/97	9	6	285	118.9	78.9	1.1	30.2	48.5	45.9	18.1
9/12/96	10	6	171	96.2	88.1	1.1	33.8	52.1	35.9	13.8
9/17/96	11	6	171	95.5	85.3	1.3	30.3	50.7	36.3	13.9
9/19/96	12	6	171	93.6	87.2	1.2	32.5	58.0	35.9	13.7
9/24/96	13	6	171	94.5	94.5	1.3	30.8	55.0	35.3	13.6
9/29/96	14	6	171	94.5	87.0	1.1	34.4	58.5	35.6	13.8
10/3/96	15	50	285	118.8	91.9	1.1	33.7	58.8	45.7	18.2
10/8/96	16	50	171	97.2	90.2	1.2	33.5	56.8	36.2	13.9
10/10/96	17	50	171	93.2	89.6	1.2	33.9	65.1	35.5	13.7
10/15/96	18	50	171	86.2	81.8	1.2	36.8	68.8	34.6	13.7
10/17/96	19	50	90	63.1	60.4	1.1	35.3	82.7	26.4	10.7
10/22/96	20	50	90	68.2	65.8	1.0	30.3	59.0	26.0	10.1
10/24/96	21	50	90	72.8	71.7	0.9	25.8	42.3	26.3	11.4
10/29/96	22	50	90	69.5	58.3	1.0	36.6	60.1	27.4	11.4
10/31/96	23	50	90	68.4	63.0	1.0	34.3	63.6	25.4	11.3
11/5/96	24	6	127	83.3	83.3	1.1	26.7	53.2	32.4	12.5
11/7/96	25	6	127	78.8	73.3	1.1	29.9	58.5	33.3	13.1
11/12/96	26	6	127	80.8	65.0	1.1	34.1	63.3	32.6	12.9
11/14/96	27	6	127	76.9	76.8	1.1	36.5	64.3	32.2	12.6
11/19/96	28	6	127	82.5	82.5	1.1	32.6	67.2	32.8	13.2
11/21/96	29	50	127	74.0	71.4	1.1	33.1	66.8	30.0	12.3
12/3/96	30	50	127	86.2	86.2	1.1	27.8	56.8	33.5	12.7
12/5/96	31	50	90	71.3	71.3	1.0	28.6	76.7	27.6	10.5
12/10/96	32	6	127	79.6	79.1	1.1	28.9	67.4	32.4	12.3
12/12/96	33	6	90	67.3	67.3	1.1	29.1	60.4	26.9	10.3
12/17/96	34	6	90	67.8	67.8	1.0	30.9	65.2	27.5	10.5
12/19/96	35	6	90	70.7	70.7	1.0	27.3	70.2	27.9	10.8
1/7/97	36	6	90	68.2	68.2	1.0	27.9	65.2	27.6	10.7
1/9/97	37	6	90	70.7	70.7	1.0	27.6	65.1	28.5	11.0
1/14/97	38	50	60	54.1	52.6	0.9	33.8	70.6	20.2	8.4
1/16/97	39	50	60	53.8	53.2	0.9	32.0	72.0	21.3	8.5
1/21/97	40	50	60	50.8	49.4	1.0	36.8	70.7	21.1	8.1
1/28/97	41	50	60	54.0	53.8	1.0	43.0	82.0	21.0	8.3
1/30/97	42	50	60	50.3	49.2	1.0	40.1	91.0	21.2	8.1
2/6/97	43	50	60	48.6	48.5	1.0	35.6	73.8	19.9	7.3
2/11/97	44	50	60	49.0	49.0	1.0	36.7	72.1	19.7	7.1
2/13/97	45	50	60	48.3	47.6	1.0	48.2	92.2	20.8	7.9
2/18/97	46	50	60	47.8	47.6	1.0	33.2	60.7	19.6	7.1

Table C-79. Average north and south shield pressure-time values for all sheep tests.

Date	Test Number	Number of Shots	Charge Weight,g	120mm Mortar Simulator Pressure-Time Pmax, kPa	Pi, kPa	Ta, ms	Tb, ms	Td, ms	A-Impulse, kPa*ms	Psm, kPa
2/20/97	47	50	60	46.7	45.5	1.0	36.4	70.4	19.5	7.1
2/27/97	48	50	60	46.3	46.2	1.0	37.7	71.5	19.6	7.2
3/4/97	49	50	60	47.6	47.1	1.1	34.3	64.1	19.5	7.1
3/6/97	50	50	60	47.1	47.0	1.0	32.5	64.8	19.2	7.0
3/11/97	51	50	60	44.8	44.4	1.1	31.4	63.4	19.2	7.0
3/13/97	52	50	60	44.5	44.5	1.0	29.7	59.2	18.5	6.8
3/18/97	53	50	60	44.4	44.4	1.1	33.7	64.4	19.1	7.0
3/20/97	54	50	60	45.6	45.5	1.0	27.1	59.8	18.7	6.9
3/25/97	55	50	60	47.1	45.8	1.0	43.4	82.3	20.8	7.9
3/27/97	56	50	60	49.6	48.9	1.0	35.1	67.9	19.9	7.7
4/1/97	57	50	60	46.9	46.6	1.0	43.0	81.4	21.2	7.8
4/3/97	58	50	285	122.3	120.6	1.3	31.4	86.1	45.6	17.3
4/8/97	59	50	285	119.6	118.4	1.3	30.4	78.1	45.0	16.9
4/10/97	60	50	285	118.5	111.2	1.2	26.6	61.7	44.0	16.7
4/15/97	61	50	285	121.7	118.2	1.2	26.5	64.3	45.4	17.1
4/17/97	62	50	171	99.7	99.7	1.3	23.8	50.4	35.2	13.1
4/22/97	63	50	171	102.7	101.9	1.3	26.5	58.3	36.6	13.7
4/24/97	64	50	127	81.9	81.8	1.0	28.9	61.9	31.9	12.1
4/29/97	65	50	127	81.3	81.3	1.0	22.5	52.8	29.1	11.0
5/1/97	66	50	127	81.5	81.5	1.1	25.5	67.4	30.7	11.6
5/8/97	67	6	90	69.9	69.9	1.0	24.6	48.2	25.4	9.7
5/11/97	68	6	90	76.4	76.4	1.0	23.8	54.7	25.9	10.0
5/15/97	69	6	90	71.1	71.1	1.0	25.8	48.8	25.8	9.8
5/20/97	70	6	90	72.1	72.1	1.0	25.2	48.3	26.1	9.9
5/22/97	71	6	90	71.8	71.8	1.0	25.1	50.0	26.0	10.1
5/26/97	72	6	90	71.3	71.3	1.1	25.0	59.1	25.9	10.0
5/29/97	73	6	90	71.9	71.9	1.0	23.7	50.6	25.4	10.8
6/3/97	74	6	1452	357.1	357.1	0.9	9.5	23.3	117.4	43.8
6/5/97	75	6	1452	360.9	360.9	0.9	11.8	25.4	128.8	44.8
6/8/97	76	6	1452	407.6	407.6	0.9	9.4	21.1	131.5	45.6
6/12/97	77	6	1452	362.8	362.8	0.9	11.2	21.9	127.2	44.2
6/17/97	78	6	1452	349.6	349.6	0.9	10.6	25.0	127.6	44.3

Pmax = peak pressure
Pi = incident pressure
Ta = A duration
Tb = B duration
Td = total duration
Psm = smoothed peak pressure